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THE PREVENTION OF INSANITY

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FROM the reports of the various Canadian institutions for the insane, I find that there were under treatment at the end of the last fiscal year of the several hospitals, upwards of 12,000 people who were being maintained at the public expense, at a cost, for the year, of nearly \$2,000,000. These figures do not take into account those of our insane who are being maintained by private means, nor those who are under care at their homes, in county asylums, poor farms, and other places to which chronic, harmless patients are assigned. It would probably be quite safe to say that there are at least 25,000 insane people in Canada to-day. Of this number a large majority are not only useless members of society, being unable to earn anything or to contribute in any way to the general weal, but are actually costing the country fully \$3,000,000 a year for their support.

Much attention is being given by students of sociology and economics, as well as by those directly associated with the care of the insane, to an apparent increase in the prevalence of insanity. That the number for whom institutional care is being sought is increasing in a much greater ratio than the general population, there can be no doubt. Much of this discrepancy, however, can be accounted for by such factors as the multiplication of institutions for the insane; the facility with which patients may now be transported to such institutions as compared with former times; an increased sensitiveness or intolerance of communities to those

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exhibiting mental warp; a decreased sense of responsibility on the part of relatives; possibly a lessened dread of asylums; and a growing tendency to voluntary entrance to these institutions. After due allowance is made for such factors, I believe that there is still reason to think that insanity is becoming more common. This is really what we should expect, for the general betterment of hygienic conditions, coupled with a decrease of alcoholism, and possibly also of tuberculosis, has placed restrictions upon nature's methods of eliminating the unfit, and doubtless permits the survival of many who would perish under such conditions as formerly prevailed. Of course, with further advance in preventive medicine, and especially as a result of effort directed particularly to the prevention of insanity, this seeming anomaly will disappear, but, meantime, the demand for institutional accommodation will, no doubt, continue to grow rapidly until practically all mental defectives are provided for. And the state must recognize that this burden will inevitably be forced upon it, and must undertake its full share in the solution of all the problems which associate therewith.

But even if there were no tendency for the affliction to grow in prevalence and to increase the tax rate, there is quite sufficient reason to consider it from the standpoint of possible prevention. No other disease has so many things to be urged against it. Most forms of mental disease cause the patient more or less acute mental suffering, and all bring to the patient's friends mixed feelings of anguish, humiliation, and fear, which rob life of much of its attractiveness for them. Nor is it to be forgotten that many of the most revolting as well as the most distressing of crimes have been perpetrated by insane people. In order that society may be protected against such events, the individual manifesting mental symptoms must be committed to an institution, robbed of his liberties, deprived of his home comforts and home pleasures and legal rights, associated often with most objectionable people, submitted to a more or less rigorous and irritating discipline, and, in fact, condemned to an existence which, in some respects, is worse than that provided for the criminal classes. Then, too, we must not neglect the tendency of like to beget like, of an insane patient to transmit mental instability to offspring, a tendency which has more than an economic interest, and which is fraught with the most momentous consequences to the mental and moral, as well as to the material, welfare of the nation. There are, therefore, many and varied reasons why we should give consideration to the possible means by which in-

sanity, the greatest of calamities to which flesh is heir, may be prevented.

The first essential to prophylaxis is of course a thorough understanding of ætiology, and it must be at once admitted that our knowledge of the causation of insanity is far from complete. Nevertheless, we have certain data to which we can attach fairly definite value, and we may reasonably take these as a starting-point for a consideration of preventive measures.

In the first place, there is heredity. In 20·6 per cent. of the 10,511 men, and in 25·2 per cent. of the 11,302 women admitted to the asylums of England and Wales during 1908, there was an heredity of insanity. In addition, various neuroses and marked eccentricity appeared in the forebears of 3 per cent. of the men and 4 per cent. of the women, while a history of parental alcoholism was found in 5 per cent. of the men and 5 per cent. of the women.

Doubtless much of what we term heredity is not really an organic inheritance, but rather an inheritance of external conditions, such as poverty and environment, with all that environment entails in such matters as food, hygiene, etc., and perhaps alcoholism. Our ideas relative to heredity have been much unsettled by recent research and literature, but of the fact of its influence most of us feel that we have had ample proof in our professional experiences, and we are persuaded that an individual having an insane heritage is more likely to succumb to adverse circumstances than one more fortunately endowed. The same applies to the predisposition by inheritance to any condition which lowers resistance, such as tuberculosis. Therefore, we think of the importance of establishing a stable state for transmission, and yet one having a capacity for adaptation, within limits, to changing environment. Nature apparently undertakes to provide for these things, for, on the one hand, the body generally is fully developed before the reproductive function becomes active, while, on the other hand, the power of reproduction disappears before adaptability is threatened by the changes of senility.

Regret is often expressed that common sense is not more generally used in the propagation of the human species, and we are familiar with attempts at legislation aimed at the control of marriage, the sterilization of degenerates, etc. Sentiment, however, is generally against such measures, and doubtless, also, there are better reasons than mere sentiment for opposing them. Something may be done in dealing with the more reasonable sort, by the gentle art of persuasion, the objections to marriage and especially to

procreation being set forth tactfully, as one has opportunity in dealing with those in any way predisposed to psychic disturbance. Such instruction might well be undertaken early in life, before any suspicion of a "love" entanglement has to be combatted. When there is evident defect, particularly if any tendency to eroticism is manifest, the safety of the community, as well as of the unfortunate individual, demands segregation in a suitable institution. This costs more than sterilization or the lethal chamber, but does less violence to sentiment. Some authorities, as Archibald R. Douglas, of the Royal Albert Institution, assert that the imbecile is a much more potent agent in producing racial deterioration than the lunatic. I doubt if we have any more pressing need in Canada to-day than the proper provision for the feeble-minded members of our country, particularly those who are still sexually competent.

At best, we shall, for many years at least, be able to control the production of potential lunatics to only a very small extent. But we have the opportunity of guarding the individual who is handicapped by his heritage, and of protecting him against at least many of the factors which will presently be suggested as determining causes of insanity. In fact, it is, perhaps, in such an instance that preventive measures can be made most effective, for the knowledge of predisposition at once gives the physician a clue of greatest value, the importance of which should never be underestimated.

It is doubtful if any one whose mind has developed normally can become insane merely because of a transmitted tendency, although some authors consider this possible. Probably a number of causes coöperate in all cases to produce breakdown. Associated with heredity, in the English tables, as given in the sixty-fourth report of the Commissioners in Lunacy, I find the following to be most commonly assigned as causal of insanity: prolonged mental stress, alcoholism, puberty and adolescence, sudden mental stress, senility, epilepsy, syphilis, influenza, cardio-vascular degeneration, trauma. This represents the order of frequency when the sexes are grouped. If either sex be taken separately, the order is materially changed. While these represent but a small number of the causes associated with heredity, they are those of most frequent occurrence, and therefore of greatest importance for the consideration of the practitioner.

The critical periods of life demand some attention. Age appears to have more or less influence in determining, for instance, the effect of a toxic state. The instability of the nervous system of

the child is well recognized, and there are few, if any, of us who have not witnessed the distressing consequences of apparently trivial febrile processes in young children. The same may be said of the disastrous results of comparatively trifling vascular accidents within the brain of the child. For such conditions we can do very little. The period of puberty and adolescence is one which should have the physician's special consideration. Seven per cent. of all cases of insanity occur between the ages of fifteen and twenty, and it is especially at this time that dementia præcox, so fatal to reason, occurs. The physiology of this period should be attentively studied, and the predisposed child in particular should be kept free from harmful influence, every effort being made to secure for him a healthy and sane environment. And then the climacteric is a most critical period, especially for women. In 8.2 per cent. of the women admitted to English asylums in 1908, the climacteric was included amongst the assigned causes, and was considered to be the principal factor in causation in 4.6 per cent. This is the period over which the physician has perhaps greatest control, and it must needs be handled very tactfully and judiciously. Disorders of the reproductive system should receive proper consideration, but under no circumstances should the patient be alarmed about any condition discovered by the physician. All cause for worry should, as far as possible, be removed, and the attempt made to secure a happy and tranquil home life. The general health, of course, should be carefully guarded and sustained, so that the patient may be fortified for the long period of uncertainty through which she must pass. Finally, senility as a causative factor of mental decline cannot be overlooked. We speak of the normal mental failure of old age, perhaps without justification (for many very old people retain their faculties perfectly), but rather in recognition of the frequency with which the final years are accompanied by more or less mental loss. These minor mental changes, as well as more marked dementia, are doubtless due to nutritional defects or toxic influences resultant upon vascular and circulatory changes, which in turn may be consequent upon such factors as syphilis, alcoholism, and even constipation, very often preventable conditions, and quite within the province of preventive medicine.

Social conditions play a more or less prominent part in combination with many of the factors causal of mental disease. Thus we find that the proportion of private patients who break down in adolescence, or in old age, is less than that of pauper patients, while the reverse holds of those who break down at the climacteric. Preg-

nancy, the puerperal state (not septic), and lactation, too, are less prone to produce mental disease in the well-to-do than in the poor. These instances must suffice to show the benefit of care, which naturally is greater in the well-to-do than in the poor.

Mental stress, whether sudden or prolonged, is a potent factor in the ætiology of insanity, although it has doubtless always other factors associated with it, and notably heredity. This is a resultant of our civilization, and depends upon such a variety of conditions that its valuation is most difficult. Nor can it be dissociated from other products of civilization, such as the artificial life of the city, with the crowding in insanitary tenements, the ill-nourishment, the struggle for existence, and the excesses of various kinds so common amongst residents of cities. In all England and Wales, prolonged mental stress is given as a cause in 16·5 per cent. of admissions for a year (1908), while in the London county asylums (1909), it is an assigned cause for nearly 24 per cent. of cases. These figures should perhaps not be compared, as they are gathered from separate reports, and one must always consider the personal element in the compilation of statistics. Yet such element could not account for all of the discrepancy between the figures for London and those for England at large. The influence of city life on the production of insanity is also shown by the figures of the State of New York. In 1908, 76·8 per cent. of the male, and 79·6 per cent. of the female, admissions to the hospitals for the insane of that state were from the cities and large towns, while 90 per cent. of the male paretics and 88·3 per cent. of the female paretics, 81 per cent. of the male cases of alcoholic insanity and 79·6 per cent. of the female cases, came from the large centres of population. We find in these figures a good reason for the cry "back to the land," but the movement towards the cities is growing steadily, and it becomes more and more evident every day that it is here that the work of prevention must be largely centred. In this we have a problem of increasing magnitude, the solution of which, in the interest of every phase of our social life, must very soon be seriously undertaken.

It is particularly in the cities that alcoholism and syphilis are rampant, and for that reason I venture a few remarks on these conditions. The last (1908) British statistics assign to alcohol the causative role in 22·6 per cent. of the male and 9·9 per cent. of the female admissions to asylums for the year, the average being slightly less than 16 per cent. for both sexes. In the London county asylums, on grouping the sexes, it is found that, of the admissions for 1909, 20 per cent. owed their insanity to alcoholism. Thus

again is the influence of city life shown. A full consideration of all the conditions co-related to alcoholism is desirable, and in fact necessary, in order that we may be able effectively to direct efforts to the correction of this evil. The physician must not ignore any factor which is prejudicial to health, and the abuse of alcohol is so well recognized as a common cause of disease that it becomes a duty of every member of our profession to give to it at least as much attention as is given to other causative factors. It may not be easy for us to decide just what attitude we should take towards the prohibition movement, but we should at least never lose thought of the fact that those predisposed by heredity, or otherwise, to psychic or neuric breakdown are singularly susceptible to alcohol and similar drugs, which, in consequence, should be prescribed for them only with the greatest circumspection.

As to syphilis, this was found in the history of 11.3 per cent. of the first admissions (1909) to the London county asylums, and 4.8 per cent. of those to the asylums of all England and Wales (1908). It has coupled with it a history of alcoholism in 3.3 per cent. of the London cases. The connexion of syphilis with general paralysis is now generally conceded, and Kraft-Ebing's characterization of this disease as one of civilization and syphilization is commonly accepted. It seems hardly necessary to state that this very potent cause of insanity, while doubtless quite as difficult of control as the sale of alcohol, is admittedly preventable, and the profession should unite in an effort to eliminate so large a contributor to the world's misery.

These brief references to some of the more notable causes of insanity must suffice to indicate the possibilities in the matter of preventing this most distressing condition. There are, however, still a few matters to which I wish to direct your attention for a moment. One is the desirability of a more thorough recognition of the importance of psychiatry by our medical colleges. Unfortunately our text-books describe only well-developed insanity, and give little account of the prodromata and earlier manifestations. Naturally the class-room and hospital teaching follow upon very similar lines. The fact is that specialists in psychiatry—those who write our books—do not often see mental disease in its early stages. The general practitioner is the one thus favoured, and from him must come, largely by means of full and accurately prepared statements of the cases of mental patients, the data upon which a better understanding of these cases must be based. To aid in the collection of such information, and also to encourage mental patients to seek

hospital care at a very early period of their illness, I feel strongly that provision should be made for such patients in the general hospitals, to which patients could be admitted without certification. A large proportion of insane patients could easily be cared for in this way, and saved from the stigma and various disabilities which result from commitment to an asylum. The opportunities for extended study of intercurrent conditions, for consultation with various specialists, and for laboratory research work, which the general hospital affords, should prove most helpful in the treatment of the mental patient, while the difficulties in the way of clinical teaching in psychiatry would be at once removed. The feasibility of this scheme has already been demonstrated in several cities, and such notable results have been obtained as to attract attention.

Finally, I would advocate something in the way of an educative campaign. In this age of educative campaigns, we are perhaps too prone to fancy that the solution of our social problems lies in popular lectures and magazine articles. But even in the case of tuberculosis, which we have lately taken so hard, I believe that the most effective work being done to-day is that which goes on quietly in the regular practice of the alert physician. So, too, the greatest results in mental prophylaxis will be accomplished by the conscientious efforts of the general practitioner to guard the predisposed from unfavourable influences, and to advise them in all matters relating to health. Possibly, however, something might be gained by such a campaign of education as that now being undertaken in the State of New York, modelled after the methods of anti-tuberculosis organizations. The matter is one of such general concern that I feel that no effort should be spared to lessen, if possible, the prevalence of this affliction, which is so distressing and so incapacitating, and which has doubtless a definite influence upon national intellectuality and national morale.

"RESIDUAL urine is the result of not emptying the bladder thoroughly. This is due to insufficient effort being made. Residual urine can be got rid of by making another or greater effort to pass it. The bladder can be thus trained to thoroughly and systematically empty itself. As a result of this the patient is saved from the necessity of having to rise out of bed during the night, and may also be saved from 'catheter life.'"

—*The Practitioner.*

THE OPERATIVE TREATMENT OF GLAUCOMA WITH SPECIAL REFERENCE TO THE LAGRANGE METHOD

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A FEW years after von Græfe discovered the wonderful influence of iridectomy in relieving the symptoms and avoiding the loss of vision consequent upon attacks of glaucoma, it was noticed that this form of surgical intervention, efficacious in the majority of cases, failed to cure or much relieve the more chronic forms of the disease. In other words, although applicable to certain types of glaucoma, it was found to be useless in some and positively injurious in others. Ophthalmic literature is full of the observations of experimenters and replete with descriptions of operations devised to amend, or improve upon, iridectomy as a remedy for the two last-named forms of glaucoma.

It was on account of the failure of iridectomy to cure certain cases of glaucoma and because of his belief that the relief of tension following iridectomy is due not so much to the excision of the iris as to the exosmosis of fluids by way of the spaces of Fontana, that de Wecker,¹ some twenty-five years ago, introduced anterior sclerotomy. His purpose in this operation was to establish a filtrating scar at the iridian angle through which the intraocular fluids might find a vent.

Before considering, even superficially, this aspect of the question, one must not lose sight of the fact that the term "glaucoma" has long been applied to a dozen entirely different pathological conditions or entities. It is not my purpose to discuss a classification of glaucoma; although for practical, clinical purposes and for the consideration of operative measures, it may be said that those forms of increased ocular tension (excluding the association of tumour, traumatic swelling and dislocation of the lens, massive intraocular exudates, gross tubercular and syphilitic lesions, etc.) accompanied by pain, dilated pupil, and ciliary congestion, are relieved and often cured by iridectomy and sclerotomy in any of their simple or combined forms. As Hess and others have pointed out, it is not even necessary, under conditions favour-

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able for the operation, to do either a peripheral or a wide iridectomy—text-book declarations to the contrary notwithstanding. We all know these cases, where *any* excision of the iris, however well or ill carried out, results in the entire and permanent disappearance of all the glaucomatous symptoms.

Still, as we are also well aware, there is a second class, wherein the effusion of the intraocular fluids is so voluminous, or the drainage system of the eye so defective, that the ocular system is unable to cope with it. In these cases, any form of iridectomy or sclerotomy is insufficient to prevent a recurrence of the glaucomatous attacks. A third clinical class might include those instances in which iridectomy or sclerotomy, alone or in conjunction, not only fails to check the march of the glaucoma but sometimes positively damages the eyesight. It is the treatment of the last two classes that I particularly desire to discuss.

Nearly twenty years ago I was called upon to operate on a lady, forty-two years of age, who presented the usual evidences of gout. She had had an iridectomy done for the relief of well-marked attacks of glaucoma in the right eye. The operation had relieved the ocular pain, improved her central vision, greatly increased the extent of her visual fields, and in every respect seemed to be the proper treatment for the condition. However, the relief was not permanent, because about a year after the iridectomy, which was performed by one of our most expert operators, she had a second attack in the same eye, for which I was consulted. I decided to do a marginal sclerotomy. This procedure was again followed by cessation of the symptoms, but the wound of operation did not entirely heal; a small fistula remained, which has persisted up to the present time. During the twenty years that have intervened since the sclerotomy, she has not had a single attack of glaucoma in her right eye, and to-day her central vision for distance and near is excellent, her tension is normal (or subnormal), and the visual fields are almost as large as they should be. Moreover, the ophthalmoscope shows nothing out of the way except a wider physiological cup in the right eye than in the left. If this were the whole story one might think little about it, but three months ago I operated on this patient's *left* eye for one of the most severe attacks of glaucoma that I have ever seen. In other words, the scleral fistula in the right eye seemed to have protected that organ from increased ocular tension and all the other symptoms of an acute glaucoma, while the left eye, having no such adventitious drainage system, finally became the subject of the same disease.

This case, and others I have seen, and that I have no doubt all of you have seen, make it desirable for us to decide what substitute we shall adopt for iridectomy or sclerotomy, especially in the chronic or quiet forms of glaucoma.

It would, of course, be impractical for me to pass in review all the procedures that have, during the past thirty years, been devised for the relief or cure of the more obstinate forms of glaucoma by utilizing the transudation of fluid through a thinned sclera or extensive scar tissue. Let me, however, refer you to W. Campbell Posey's masterly chapter on this subject in a recent work² on the operative surgery of the eye, which I have had the honour of editing. There you will find the more important of these operations fully described. In another place, also, is published not only a complete review³ of this matter but a statement of the arguments for and against the employment of remedies which I cannot properly take up here. In an investigation of this interesting aspect of operative intervention in chronic glaucoma, one should not, however, forget the following procedures: Ciliarotomy (Abadie⁴), fistula formation and wedge isolation operation (Herbert,^{5 6}), formation of a cystoid cicatrix (Holth⁷ and Maher⁸), scleral trephining (Fergus⁹)—really a modification of Lagrange's method—use of the scleral trephine (Elliot¹⁰), sclerostomy (Verhoeff¹¹), transfixio iridis (Fuchs¹²), Hancock's ciliarotomy,¹³ Walker's hyposcleral cyclotomy,¹⁴ and Querenghi's sclero-choriotomy.¹⁵

Influenced chiefly by the arguments of de Wecker, to which I have just referred, I began, in 1899, to combine with a wide, peripheral iridectomy excision of the sclero-corneal margin of the primary incision. I reserved the sclerectomy, however, for the relief of those cases that, broadly speaking, belong to the more chronic and non-congestive classes of glaucoma. I have watched many of these cases for months and years after this form of operation, and I am quite convinced of its superiority over simple iridectomy or sclerotomy. I hold the same views in the case of Heine's cyclodialysis, which I have also carried out with some success in the more quiet forms of increased tension.

After several years' employment of sclerectomy in conjunction with a peripheral iridectomy, it was a gratification to me when I first read Lagrange's article¹⁶ in the *Revue générale d'Ophtalmologie*. Lagrange concluded, as many other ophthalmic surgeons have done, that if a fistulous communication between the anterior chamber and the subconjunctival area (or some condition resembling it) could be brought about in cases of chronic glaucoma, a

deleterious increase of intraocular tension could be avoided, and that the relief thus given could be made permanent. It was with this end in view that he devised his operation—the so-called irido-sclerectomy or sclerecto-iridectomy.

The operation consists in a scleral incision, made with a Græfe knife, into the sclero-iridian angle, the pupil being well contracted with eserine. The wound lies entirely in the sclera and, on cutting out, a broad conjunctival flap is formed. This flap is drawn back over the cornea and the edge of the scleral wound attached to the cornea is removed by a pair of curved scissors. If performed at all, the iridectomy is now carried out, the conjunctival flap is replaced, and a bandage applied. Although it is by no means definitely decided that a filtration passage remains after the healing of this rather large scleral wound, yet there can be little doubt but that the intraocular fluids, in some way or other, whether it be by exosmosis or other process, find their way more or less freely beneath the conjunctiva, there to undergo subsequent absorption.

It is regarded by most operators as desirable that there should be prompt healing of the wound, and the fact that the conjunctiva covers the incision is often spoken of as an advantage, because it shields the large, open area from infection. I have done this operation on thirty-five eyes, and in each instance I have modified the procedure to the extent of removing all the conjunctiva attached to the corneal border of the operative wound. I admit that this intervention exposes the root of the iris and the ciliary body, but I have never yet had the slightest infection of the wound. I attribute this freedom from sepsis to careful cleansing of the conjunctival sac and to other pre-operative precautions, but especially to the use, before and after the operation, of White's ointment, which, as you may know, is a preparation of 1-3000 mercuric chloride in sterile vaseline. One cannot use sublimate in such a strong *watery* solution, but the vaseline seems to modify it and allow of such slow absorption that it is not only a non-irritant but a most excellent antiseptic application in operations on the eye.

In any event, the result of the Lagrange operation, if it succeeds, is to produce an œdema about the incisional wound which persists almost indefinitely. In many cases this swelling amounts to a bleb which may be increased by massage of or pressure upon the eyeball. The efficacy of the operation in lowering intraocular tension is to some extent measured by the degree and the constancy of this epibulbar œdema; indeed, I suspect that, as in the case whose history I have given, the most successful examples are those

in which scleral fistulæ, minute or otherwise, form as a sequel of the operation.

My object in excising the conjunctiva covering the sclero-corneal flap, is to delay union of the wound edges, to widen the bridge of loose cicatricial tissue between them, to prevent such a complete growth of the endothelium, which would cover the wound and effectively block the exit of fluids, and to insure intraocular rest.

In cases of chronic increase of intraocular tension associated with a quiet uveitis or an iridokeratitis, when the patient exhibits traces of old synechiæ or where there is danger of their re-formation, I do not hesitate to use atropia as long as the wound of operation has not healed.

Four years ago I saw a patient, a lady from New York, aged fifty-eight, who had, in one eye only, at intervals of months, several attacks of quiet uveitis of the rheumatic type. Each attack was associated with a shallow anterior chamber, decided rise of tension, pulsating arteries, loss of vision, and inability to read fine print. Between the attacks, the patient showed no signs of active glaucoma, although there were contracted visual fields and optic excavation. During one of these intervals of quiet, there were noticed deposits of uveal pigment on the anterior capsule, a few narrow synechiæ, and traces of corneal exudates. With my consent a wide and peripheral iridectomy was done with apparent relief. The patient was free of acute symptoms for nearly three years. During the succeeding year she had but one slight attack, which, however, was followed by secondary cataract and much lowered central vision, since when she has had no inflammatory attacks and no rise of tension. Three months ago she had a fairly well marked attack of glaucoma in the better eye, with rise of tension, slight pain, and an evident iritis. The anterior chamber became quite shallow, but the pupil responded to the eserine previously prescribed, and was distinctly contracted when I saw her.

I performed a Lagrange operation, modified as just described, and kept the patient under atropia until the wound had healed. Owing to the operation and the action of the mydriatic, the pupil dilated sufficiently to show beginning adhesions between the iris and lens, not only in the coloboma but in other parts of the anterior capsule; but, happily, these were eventually broken up. Massage with eserine ointment was begun and continued. To-day the patient has good vision and there has been no evidence of raised tension.

Lagrange maintains that a portion of the benefit following his operation is derived from opening a communication between

the peri-choroidal spaces and the anterior chamber; for the rest, a passage, more or less free, is made by way of which the aqueous filters through the meshes of the sclera into the subconjunctival area. He further describes three kinds of filtration-scars, dependent upon the amount of the sclerectomy; (1) that in which there is simple thinning of the sclerotic; (2) cases in which there are probably minute fistulae constantly discharging beneath the conjunctiva; and (3) a condition resembling cystoid cicatrix, without, however, incarceration of the iris.

Lagrange advises simple sclerectomy in those cases of glaucoma that exhibit minor degrees of tension, reserving the combined operation for more pronounced cases of glaucoma. I can hardly agree with this contention, especially in view of the facts that, done with proper precautions, the iridectomy is fraught with little danger; and, secondly, since most forms of chronic glaucoma require the benefit of every doubt. Even at the best, the outcome in chronic glaucoma is by no means assured, and the degree of intraocular tension, taken alone, is no fair criterion of operative prognosis.

While I much prefer, in suitable cases, the modified Lagrange operation to any other remedial agent with which I am acquainted, one must not ignore the fact that treatment of the particular dyscrasia, if any exist, that underlies the ocular disease, combined with the use of a miotic, sometimes holds in check the progress of a chronic glaucoma. As long as eserine (preferably employed with digital massage as an ointment or in oily solution), in addition to general treatment, reduces the tension to normal, increases or prevents the decrease of central and peripheral vision, restores the lost focussing powers, and is evidently acting as a curative force, no operative interference is, to my mind, justifiable. I agree with Posey¹⁷ "that in this slowly progressive and quiet form of the disease *treatment* of any sort is not as satisfactory as in the more acute cases." Indeed, the diagnosis from primary progressive atrophy of the optic nerve is not always made with ease, and it is quite possible that the treatment may be unconsciously applied to the latter condition rather than to a truly glaucomatous affection. Apart from the questionable employment of iridectomy, or one of its substitutes, considerable benefit is derived from attention to the general condition. Any lesion or morbid influence whatever, gout, rheumatism, disease of the nose, heart, intestinal tract, kidneys, etc., should be attended to. The most important local treatment is the use of miotics—especially eserine and pilocarpine—and I not infrequently employ them after operation.

It is difficult to lay down rules applicable to every case, but I generally prescribe a $\frac{1}{2}$ to 1 per cent. mixture of eserine in olive oil or petrolatum, one drop, or its equivalent of ointment, to be put into the eye every morning, after which the eye should be kept closed for five minutes. I may add that this mixture is non-irritant, so that the question of using cocaine does not arise. The oily mixture is slowly and continuously absorbed and is, on the whole, more effective and better borne by the patient than watery solutions. If this is sufficient to keep the pupil well contracted, a second dose is not used during the day, but, in any event, another drop is instilled just before retiring. According to the state of the eyes, I employ in my office, once, twice, or thrice a week, gentle finger massage, with usually a 1 per cent. solution of eserine salicylate. It may be mentioned in this connexion that, as Bull points out, both the hydrobromide and the salicylate are to be preferred to the sulphate, on account of their greater solubility.

Posey, who has had a large experience of miotics in these cases, believes that they should be relied upon as the sole means of treatment only in those cases which are free from attacks of so-called "glaucomatous congestion." The presence of such congestive symptoms is, in his opinion, the chief indication for operative intervention. To gain the full benefit of miotics it is necessary that they be administered properly. He advises, at first, doses small enough to avoid spasm of the ciliary muscle, rapidly increasing them until the pupil of the affected eye is strongly contracted. The contraction should be maintained, as long as life lasts, by gradually increasing the strength of the solution from time to time, and by instillations of the drug every three or four hours. Conjunctival irritation may be avoided by employing only fresh and sterile solutions of the drug. Suitable cleansing washes should be administered, and attention given to the general health, and especially to the condition of the blood vessels. Careful and repeated correction of the refraction error should be made and restrictions enjoined on the use of the eyes.

In conclusion, the Lagrange operation has been sufficiently long before the profession to say of it:

1. Whatever the *modus curandi* of the operation, it is more effective in chronic glaucoma than in either simple iridectomy or sclerotomy.

2. Even the exsection of a considerable strip of sclera with the overlying conjunctiva and the formation of a wide wound, exposing the root of the iris, is not followed by infection or other untoward results.

3. The dangers of a possible fistulous communication between the anterior chamber and the conjunctival space as a sequel of Lagrange's operation, have probably been much exaggerated.

4. It is an operation simpler and more easily done than Heine's cyclodialysis, scleral trephining, or most of the other procedures advised for the relief of chronic glaucoma.

5. In considering the conduct of a case of chronic glaucoma, the choice of a single line of procedure lies not so much with this or that operative measure as between the Lagrange operation and the intelligent use of miotics *plus* general treatment.

6. The performance of irido-sclerectomy does not exclude such post-operative measures as the use of eserine, and the exhibition of such additional systemic treatment as the individual case demands.

7. In those forms of glaucoma in which a considerable scleral exsection is indicated, iridectomy should also be done. These cases need all the drainage facilities possible, and especially that provided by the open, permeable, and permanently unhealed margins of an iridic coloboma.

REFERENCES

1. DE WECKER, "Traité des Maladies des Yeux," 1867.
2. CASEY WOOD, "A System of Ophthalmic Operations," Vol. II, pp. 1062 *et seq.* POSEY, "The Operative Treatment of Glaucoma."
3. The reader is particularly referred to the following:
 HENDERSON, "On so-called Filtering Cicatrices in the Treatment of Glaucoma." *The Ophthalmoscope*, December, 1907, p. 701.
 THOMSON, "The Question of the so-called Filtering Cicatrix." *The Ophthalmoscope*, February, 1908, p. 84.
 GRIMSDALE, "Some of the Newer Operations upon the Eye and its Appendages." *The Ophthalmoscope*, November, 1908, p. 875.
 BALLANTYNE, "The Newer Operations for Glaucoma." *The Ophthalmoscope*, July, 1910, p. 507.
 GREENWOOD, "The Filtering Cicatrix for Chronic Glaucoma." *Journal Amer. Med. Assn.*, July 16th, 1910, p. 190.
4. ABADIE, "Section de la zone ciliaire ou ciliarotomie." *Archives d'Ophthalm.*, May, 1910, p. 262.
5. HERBERT, "Subconjunctival Fistula Formation in the Treatment of Primary Chronic Glaucoma." *Trans. Ophthalm., Soc. U.K.*, 1903, p. 324.
6. HERBERT, "The Filtering Cicatrix in the Treatment of Glaucoma: An Improved Operation." *The Ophthalmoscope*, June, 1907, p. 292.
7. HOLTH, "Iridencleisis Antiglaucomatosa." *Annales d'Oculist.*, May, 1907, p. 345.
8. MAHER, "On the Treatment and Prognosis of Primary Glaucoma." *The Ophthalmic Review*, July, 1909, p. 185.
9. FERGUS, "Trephining for Glaucoma." *The Ophthalmoscope*, February, 1910, p. 74.
10. ELLIOT, "The Operative Treatment of Glaucoma." *The Ophthalmoscope*, July, 1910, p. 482.
11. VERHOEFF, "A New Instrument (Sclerostome) for Producing a Subconjunctival Fistula." *The Ophthalmoscope*, March, 1910, p. 188.
12. FUCHS, "Ueber Transfixation der Iris." *Bericht der Ophthalm. Gessel.*, 1896, p. 179.
13. HANCOCK, *Royal London Hosp. Reports*, 1860.
14. WALKER, "Acute Glaucoma of Four Weeks' Duration, Treated by Cyclotomy; Recovery of Good Vision." *Trans. Ophthalm., Soc. U.K.*, 1884, p. 101.
15. QUERENGHI, "Faits et raisons qui expliquent l'action de la scléro-iridectomie et des autres opérations succédanées (sclerotomie et incision de l'angle irido-cornéen) dans le traitement du glaucome." *Annales d'Oculist.*, June, 1900, p. 441. Same, July, 1901. "Encore du glaucome et de son opérabilité sans l'iridectomie."
16. LAGRANGE, "Iridosclérotomie." *Revue generale d'Ophthalm.*, 1906, p. 356.
17. CASEY WOOD, "A System of Ophthalmic Therapeutics," 1909, pp. 811, 812.

THE STATISTICS OF INFANTILE PARALYSIS

By C. A. HODGETTS, M.D., OTTAWA

AS little was known regarding the mortality statistics of infantile paralysis, and still less respecting the morbidity of the disease, the Commission of Conservation sent out in November last a circular letter of enquiry with blank return forms to the physicians of Canada. Of the eight thousand letters sent out, replies were received from three hundred and sixteen medical practitioners, and in this manner the histories of six hundred and fifty-eight cases were reported as occurring between November 1st, 1909, and October 31st, 1910. These cases are divided by provinces in the following manner:

Dominion of Canada:

Ontario.....	354
Quebec.....	187
British Columbia.....	48
Alberta.....	27
Manitoba.....	17
New Brunswick.....	12
Saskatchewan.....	6
Nova Scotia.....	6
Prince Edward Island.....	1
	<hr/>
	658

As to sex incidence, of five hundred and twenty-eight cases, when stated, two hundred and ninety-three were males and two hundred and thirty-five females. Of the total number where age was stated (554), only twenty-three were under the age of one year, the remaining five hundred and thirty-one being grouped as follows:

Read before the Canadian Medical Association, Montreal, June 8th, 1911.

TABLE OF CASES BY AGES

Age	Male	Female	Sex not stated	Total
2 months.....	1	1	..	2
3 ".....	1	..	1	2
6 ".....	2	..	..	2
7 ".....	..	3	..	3
8 ".....	3	..	..	3
9 ".....	1	..	..	1
10 ".....	2	3	1	6
11 ".....	2	..	..	2
12 ".....	2	..	..	2
1 year.....	26	34	9	69
2 ".....	58	38	9	105
3 ".....	34	32	..	66
4 ".....	31	29	2	62
5 ".....	25	12	2	39
6 ".....	16	17	1	34
7 ".....	6	6	..	12
8 ".....	15	9	..	24
9 ".....	5	5	..	10
10 ".....	6	6	..	12
11 ".....	4	6	..	10
12 ".....	3	7	..	10
13 ".....	1	4	..	5
14 ".....	2	1	..	3
15 ".....	3	3	..	6
16 ".....	3	2	..	5
17 ".....	4	1	..	5
18 ".....	1	..	..	1
19 ".....	3	3	..	6
20 ".....	3	..	1	4
21 ".....	3	1	..	4
22 ".....	3	1	..	4
23 ".....	4	2	..	6
24 ".....	1	1	..	2
25 ".....	1	2	..	3
26 ".....	2	..	..	2
27 ".....	3	1	..	4
28 ".....	1	..	..	1
29 ".....	..	1	..	1
30 ".....	1	1	..	2
32 ".....	2	1	..	3
36 ".....	3	..	..	3
40 ".....	1	..	..	1
43 ".....	2	..	..	2
47 ".....	1	..	..	1
50 ".....	..	1	..	1
60 ".....	1	1	..	2
65 ".....	1	..	..	1

Of these, three hundred and forty-one, or 64 per cent., were between the ages of one and five years. A comparison is made in Table 1 of the cases in age groups showing the incidence in three outbreaks or epidemics in Canada, Boston, and New York.

TABLE NO. 1

November 1st, 1909—October 31st, 1910

By age Periods

	Canada	Boston	New York
From birth to 12 months inclusive...	23	44	62
1 year old	69	93	221
2 years old.....	105	121	180
3 " "	66	90	106
4 " "	62	60	63
5 " "	39	32	28
6 to 10 years inclusive	92	98	47
11 to 20 " "	55	46	19
21 to 30 " "	29	21	2
31 to 65 " "	14	10	1
	658	628	752

The difference in the incidence of the age groups is striking. Under the age of twelve months the disease occurred in 7 to 8 per cent. of the cases in the Boston and New York epidemics, as against only 4 per cent. in Canada. In the New York epidemic, 90 per cent. of the cases were under five years of age, 71 per cent. in Boston, and only 65 per cent. in Canada. Of those over twenty years of age, there were forty-three cases in Canada as against thirty-one in Boston and only three in New York. It will be noted that in the New York outbreak over 99 per cent. of the cases were under twenty years of age.

Regarding the seasonal occurrence of the disease, it is quite evident that we are never without it in Canada, the month of maximum frequency being August, 76 per cent. of the cases occurring in the months of August, September, and October. The figures by months are:

January, 6; February, 2; March, 4; April, 3; May, 6; June, 18; July, 72; August, 217; September, 129; October, 111; November, 21; December, 10; (not stated, 59).

By a glance at the foregoing, it can readily be understood that the weather conditions are varied, the returns indicating these being as follows :

Cold and dry, 4; wet and cold, 9; snow on ground, 22; wet, 25; dry and dusty, 279; nothing unusual noticed, 88; weather conditions not stated, 188.

As showing the distribution of the cases amongst the members of the profession :

196 reported 1 case each; 56, 2 cases; 39, 3 cases; 10, 4 cases; 3, 5 cases; 3, 6 cases; 1, 7 cases; 3, 8 cases; 2, 10 cases; 1, 16 cases; 1, 20 cases; 1, 73 cases.

Two places reported an unusually large number of cases where the disease assumed epidemic form; namely, Hamilton, Ont., and North Hatley, Que. An outbreak of twenty cases was reported from West Shefford, and another of sixteen cases from North Wakefield, both in the province of Quebec; while ten cases were reported from the vicinity of Melita, in the province of Manitoba.

As to the mortality of the disease, there were 46 deaths among the 658 reported cases, which is equal to 7 per cent. The ages and numbers were as follows: 1, 3 months; 1, 7 months; 1, 12 months; 3, 2 years; 5, 3 years; 5, 4 years; 3, 5 years; 3, 6 years; 1, 7 years; 2, 8 years; 1, 10 years; 1, 11 years; 1, 15 years; 1, 17 years; 1, 19 years; 1, 21 years; 3, 23 years; 1, 24 years; 2, 25 years; 1 each at 26, 36, 47 and 50 years of age.

But a very brief outline of the statistics of the disease, as obtained by the Commission of Conservation, has here been given. It is the intention to publish in the form of a bulletin a collection of the interesting information so kindly sent in by members of the profession, along with the latest information to be obtained from the several leading Canadian authorities, coupled with data kindly furnished by Simon Flexner, and others. Sufficient has been given to show that the enquiry instituted was fully justified. That the disease is with us, we are assured; and of its fatal and maiming effects, we have every evidence. Its prevention is something to be earnestly worked for.

THE SURGEON'S INTEREST IN HENOC'S PURPURA

BY ROBERT E. McKECHNIE, M.D., VANCOUVER

IT may seem strange that I should choose such a subject for a paper to be read before the surgical section of this Association, but I hope to prove, before the end of the paper, that this form of purpura does give manifestations which call for the careful thought of the surgeon.

Henoch, in 1868, described the disease which has since borne his name. According to Allbutt's "System of Medicine", the marked feature of this disease is the association of abdominal symptoms (vomiting, colic, and intestinal hæmorrhage) with purpura and arthritic swellings. The attacks may begin with rheumatic pains and swellings of the joints, and be followed by purpura and colic, with vomiting, and blood in the stools. Or it may begin with gastro-intestinal derangement, and the purpura and articular swellings and pains follow. What is especially characteristic of it is the occurrence of repeated outbreaks of colic, vomiting, and hæmorrhage from the bowels, with purpura and pains and swellings in the joints. He also quotes Greig, Sutherland, and Lett in connexion with the presence of intussusception in this disease.

In discussing lead colic in the same work, occurs this sentence, "Forgetfulness that Henoch's purpura causes severe abdominal colic has more than once led to errors." That our authorities are remiss in the compilation of their books is evidenced by the fact that although this disease was described in 1868, the older text-books do not mention it at all, and the later ones are almost as forgetful. Thus Henoch's purpura was not even mentioned in Wharton and Curtis's "Surgery," 1898, Strumpell's "Practice of Medicine," 1891, Osler's "Practice," 1892, Buck's "Reference Handbook of the Medical Sciences," 1903, Bryant and Buck's monumental "Surgery" of 1910, or Keene's equally important "Surgery," 1910.

Gibson, in his second volume, in 1901, gives six lines to it, but does not mention intussusception. Nothnagel in his stupendous work gives about two and a half pages to it. Although he mentions

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obstinate constipation in the early stages, he does not mention intussusception.

Osler, in the *American Journal of Medical Sciences*, December, 1895, has an article "On the Visceral Complications of Erythema Exudativum Multiforme." Some typical cases of Henoch's purpura can be found there in the form of case reports, although Osler does not seem to think Henoch had proved the existence of a definite symptom-complex sufficiently clearly to have it entitled to be named a new disease. In this respect the words of Litten, in his article in "Modern Clinical Medicine" may not be inappropriate. "We therefore regard this not as a special form of purpura, but as a special manifestation of the same transitory hæmorrhagic diathesis, which in all cases has one and the same pathogenic cause."

Litten's article in "Modern Clinical Medicine," Appleton, 1906, gives the best description I have read of this disease, but he, too, has made no mention of intussusception. So we find that our authorities either ignore the condition, or treat it scantily. And the point that we as surgeons should take the most interest in, namely, the complication of intussusception, is almost entirely ignored.

Dr. Joseph H. Pratt, of Harvard University, writing on purpura, in Osler's "System," says, in relation to Henoch's purpura: "At first the bowels are constipated, and if they do not move for several days, the mistaken diagnosis of acute intestinal obstruction may be made out." He also gives one case of intussusception (Sutherland) in forty-three cases. In the light of cases I quote, including my own, this authority undoubtedly errs in the following paragraph on "The Surgical Importance of the Recognition of the Visceral Crises." He says, "The literature shows that at least six patients have been subjected to an exploratory laparotomy during the past few years for this form of colic. The practical lessons to be drawn from this experience are, first, that in children with colic, the greatest care should be taken to get a full history, which may bring out the facts of previous attacks, either of skin lesions, of arthritis, or of intestinal crises; and secondly, to make the most careful inspection of the skin for angio-neurotic œdema, purpura, or erythema. Thousands of attacks of severe colic occurred among cases of Henoch's disease that have been reported. With the exception of one case, in which intussusception was found at autopsy, recovery from the colic has occurred in every instance."

Some may claim that the disease is so rare that it is not worth discussing, but I shall endeavour to show the contrary. Some of our

journals in recent years have records of cases, and I myself have seen five cases in Vancouver, two of which had intussusception, as proved by operation. And this is where the surgeon should begin to take an interest in the subject.

Hugh Lett, assistant surgeon to the London Hospital, in the February 20th, 1909, number of the *Lancet*, has a very valuable paper on "Intussusception in Henoch's Purpura." While narrating his particular case he also gives an historical outline of the disease, and enters into differential diagnosis. One sentence is very pertinent to this paper: "So much for the differential diagnosis between Henoch's Purpura and Intussusception, but it may be necessary to diagnose an intussusception which has occurred during an attack of Henoch's Purpura," and, I might add, before the purpura has appeared.

H. Betham Robinson, M.S., F.R.C.S., in the October 1st, 1910, *Lancet*, reports a case with a severe enteric intussusception, with gangrene, necessitating resection of two feet five inches of bowel. Dr. G. A. Sutherland, physician to the Hampstead and North-West London Hospital, in the June 26th, 1909, number of the *Lancet*, reports three cases, two of the ordinary type, and one where the abdominal symptoms appeared early, which were so severe as to lead to an operation for peritonitis, though none was present, for finally the purpura appeared and established the diagnosis of Henoch's purpura. In this case at the operation some irregular patches of congestion and petechial spots in the intestines were found.

Dr. Alexander Don, of Dundee, in the August 21st, 1909, number of the *Lancet*, reports a case, but no mention of intussusception was made, although a firm sausage-shaped tumour could be made out by palpation over the descending colon. Dr. F. C. Pybus, in the October 9th, 1909, *Lancet*, narrates a case where a laparotomy was performed, with the idea that it was a case of intussusception. None was found, but there was about eight inches of cedematous bowel in the lower part of the ileum. The purpura did not appear till a week later.

Dr. A. Stewart Macmillan, of Coventry, in the November 26th, 1910, *British Medical Journal*, states a case, where "the severity of the abdominal symptoms almost brought the patient to the operating table for a laparotomy." Dr. David Manson, in the December 31st, 1910, *British Medical Journal*, follows up Macmillan's report with one of his own.

THE VANCOUVER CASES. Dr. Cartwright had a case in a man

aged fifty-three, used to working out-of-doors in all weathers. In November, 1909, he was exposed to cold, wet weather at his work, and sought medical aid, with pain in his joints, nausea, vomiting, and abdominal cramps. The vomitus was of a dark colour; blood was not verified in it at this time, although suspected from his description. He was treated for rheumatism for a few days, when the symptoms again became aggravated, purpuric spots appearing on all parts of the body, with vomiting, the vomitus containing blood. The urine also contained blood in small quantities. No blood was noted in the fæces. The patient gradually got well, although when last seen he was not rugged, and looked as though he had passed through a severe illness. I became interested in the case by hearing Dr. Cartwright mention the abdominal cramps, associated with the purpura.

Dr. J. W. Thomson furnished a case in a previously healthy boy of seven. His symptoms set in with colicky pains in the abdomen. Four days later a purpuric rash appeared, and two days later, when Dr. Thomson first saw him, he had a temperature of 100.6° , a pulse of 100, and purpuric spots about the elbows and knees, and over the right buttock. In addition, he had abdominal pain and marked tenderness, especially in the right side near the umbilicus, and marked rigidity of the abdominal muscles over the tender area. The ankles, knees, and elbows were also swollen. The case ran on from the beginning of September to the last of November. The last hæmorrhage, which was into the scrotum, appeared on November 7th, and was accompanied by colicky abdominal pains and pains in the joints. A blood examination on September 12th showed that the coagulability was normal, the red and white blood cells normal, and the hæmaglobin 87 per cent.

This patient showed a decided improvement each time an injection of anti-diphtheritic serum was used. Repeated examinations of urine and stools failed to find blood, nor was there any blood vomited. However, the colicky abdominal pains were so characteristic, and accompanied the various eruptions so closely, that this case must be classed as one of Henoch's variety.

Dr. Lachlan MacMillan's case was acute, in a child aged two in good general condition. Six weeks previously it had had an attack of abdominal cramps, somewhat similar to the attack to be described, and two weeks previously it had had a measly rash on the legs, which lasted two hours. Finally, Dr. MacMillan was called in because the child's heart was beating rapidly. He found a pulse of 130, a temperature of 101° , the tongue coated, and the

abdomen tympanitic and generally tender. The following day there was vomiting, intermittent abdominal cramps, rigidity of the abdomen, and obstinate constipation. The next day the temperature and pulse were still high. The constipation persisted, respirations were irregular, a hiccough developed, and there was still some vomiting, but this only when something was given by mouth. Enemata still were ineffectual, but following one, about one-half pint of blood was passed. Intussusception had been thought of the previous day, and operation urged. On the fourth day the temperature was 102° , pulse 130, and abdomen rigid and tender. An indefinite mass was thought to be felt to the right of the middle line in the umbilical region, and seemed to confirm the diagnosis of intussusception. The abdomen was opened by the writer, assisted by Dr. MacMillan. When the hand was passed in, a mass was felt among the small intestines, corresponding to the mass already found. This proved to be an intussusception of the small intestine, about the upper ileum. It reduced while being brought into view, but there was a distinct collar of constriction, indicating the site of the intussusception. We judged that about three inches of bowel had been involved.

The most interesting disclosure of the operation, however, was the condition presented of numerous subperitoneal hæmorrhagic spots, from hemp seeds to beans in size, numerous studded all over the small intestines. These spots were dark red in colour, differing from my first case (to be described), where the areas were brilliant crimson. The case was at once diagnosed as Henoch's purpura, the abdomen closed, the irregular action of the bowels controlled by belladonna and opium, and the case treated expectantly. There were, during convalescence, several slight attacks of cramps, but the child eventually got well. At no time in this case could cutaneous purpuric spots be demonstrated.

My first case occurred in a boy of ten, with a previously good history. I was sent for on account of abdominal pains, and found him with a practically normal temperature, pulse a little fast, and severe abdominal cramps. Enemata failed to relieve, but brought away a little blood. His constipation was not absolute, just enough to keep me anxious, as occasionally some faecal matter would come away. After watching the case three or four days, and after consultation, we decided that we had a case of intussusception. The symptoms then were, temperature 100° , pulse 90, vomiting, severe abdominal cramps, blood from the bowel, with mucus, and an ill defined tumour to the right of the navel, with general abdominal

tenderness. I operated, and found an enteric intussusception about three inches long, and easily reducible. The serosa of the small intestine was densely studded with bright crimson spots, varying in size from a rape seed to a twenty-five cent piece, and of irregular form, as from coalescence. Even then we did not recognize the condition, but next day a few, small, purpuric spots were found about the elbows and knees, and our diagnosis was clear. The case dragged on a long time, several months, with recurring abdominal crises and purpuric manifestations. Nephritis developed, and was the ultimate cause of death, which occurred with uræmic convulsions some months later.

My second case was in a boy aged ten, a few days indisposed, with pains about the joints, and colicky pains in the abdomen. On my first visit, I found a moderate number of purpuric spots on the upper and lower extremities, with a slight elevation of temperature and a tender abdomen, especially on the right side. He had a history of having passed some blood-stained fæces. Subsequently a few crops of purpuric spots appeared, accompanied by colicky pains in the abdomen, but no more blood from the bowel. The case rapidly got well. All the Vancouver cases were in males. The foregoing cases reported in recent literature, and the cases just reported for the first time by me, show that the disease, with its abdominal crises, is prevalent enough to demand better recognition; but when, in addition, it is shown that a surgical condition is not an infrequent accompaniment, it is passing strange that our surgical authorities have entirely ignored it.

I have not attempted to go into the ætiology of the disease, but merely to prove that Henoch's purpura may, in some cases, simulate some grave abdominal condition, that the abdominal symptoms may precede for several days the purpuric manifestation, and so throw one off his guard, and that these cases so closely simulating intussusception, with vomiting, severe abdominal pain, constipation, blood and mucus in the stools, may yet be purely medical cases.

On the other hand, I have shown that an intussusception can occur in a case of Henoch's purpura, several days before the appearance of the rash, and also that in a typical case of Henoch's purpura an intussusception is not infrequently present, and demands intervention. Lett, in his article previously referred to, in diagnosing a case of intussusception in Henoch's purpura, lays down the rule that we should not diagnose intussusception unless a tumour can be palpated, and if the ordinary examination be negative, then an

anæsthetic should be given, as nearly all cases of intussusception will reveal a tumour under an anæsthetic, and, failing to find a tumour, operation should not be done.

"THE value of the antitoxin treatment of diphtheria has been abundantly proved, but may have certain ill results, which are not due to the antitoxin but to the horse serum containing it, and also may be produced by the serum used for other diseases—tetanus, streptococcic infection, etc. The symptoms are fever and a rash, usually urticaria or a variety of erythema multiforme. They occur in about 33 per cent. of the cases treated. Other and much more serious symptoms occur in 3 or 4 per cent. of the cases—acute pains in joints, tendons, and fasciæ, with fever. Occasionally the joints are swollen (arthritis). These symptoms rarely appear before the expiration of a week from the injection of the serum. This incubation period may be prolonged to as long as three weeks. This febrile attack, with a rash and in some cases also with arthritis, constitutes the 'normal reaction' to horse serum. The serum of other animals causes similar effects. In the vast majority of cases of diphtheria, the sickness, though it may be unpleasant, is not dangerous."—*British Medical Journal*.

"THERE is one thing lacking in many of the cities and towns of Canada, and that is efficient restaurant inspection. Such inspection, where it is carried on, embraces a number of interesting features. A score card is used as a matter of record, and every restaurant proprietor is given full explanation of its uses. A system of points makes up the standing of a restaurant inspected, and a score is made up of proportionate points. The restaurant kitchen, ice-boxes, attendance, pantry or storeroom, methods of washing dishes, the dining-room and surroundings, constitute the 'curriculum' of this inspection, which makes for general cleanliness, absence of flies and other insects and wholesome service. Under this system a restaurant scoring eighty-five is regarded as high grade, while one below fifty is weak in sanitary measures. The main-spring in such a system is the publicity given these monthly reports. In these days of sanitation it is no less than a crime to tolerate dirty restaurants and unclean food and drink."

—*The Public Health Journal*.

TREATMENT OF UTERINE DISPLACEMENTS

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THE different varieties of uterine displacements and the symptoms caused by them having been fully described by the previous speakers, it now remains for us to consider what means are at our disposal of alleviating or curing these conditions. First of all, do all cases of displacements met with in the course of one's practice require attention? This question may be replied to by a most emphatic negative. One not infrequently finds, while making a routine examination of a patient, that her uterus is in a position of extreme retrodisplacement, and yet feels convinced that her symptoms are not in any way due to this condition; but the physician must be quite sure of his premises before deciding this important point.

Given a patient with a displaced uterus which is causing her trouble, however, what are we to do for her? Are we to rush her into the operating room, and, by some brilliant method of surgery, attempt to restore the woman to health, or are we to endeavour to attain the same object by some slower, but safer, procedure? The answer will depend altogether upon the nature of the case and the circumstances and surroundings of the patient. Women who come under our care in the wards of a public hospital seldom have the time to spare from their household duties to permit of their taking a long rest in bed, together with a protracted course of massage and local treatment of the pelvic organs, and, therefore, they require more drastic handling than their more fortunate sisters, but the knife should always be held in the background until all other means of help have been carefully considered.

Anterior displacements of the fundus are rarely sufficiently marked to cause symptoms, other than that form of dysmenorrhœa beginning a few hours before the appearance of the flow and ceas-

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ing, or at all events becoming greatly lessened, after the flow has once been fairly established. This class of displacement will almost invariably yield most satisfactory results to a thorough dilatation of the cervical canal and curettage, followed by the stitching in place of a tube inserted into that passage and left there for from twelve to fourteen days, by which time the slight lacerations which have been caused in the muscles of the sphincter at the internal os will have been pretty well healed. The procedure removes any diseased mucous membrane which may be present and straightens the uterine canal, thus allowing of much better drainage than existed previous to this manipulation. The first menstruation succeeding the operation is apt to be painful, of which fact the patient should be warned, but the future periods will usually be free and painless for some years to come, and even for all time if the patient becomes pregnant and gives birth to a full term child.

Very occasionally, the anteflexed uterus will be found to press upon the bladder, causing irritability of that viscus. Here the efforts of the physician should be directed towards improving the various muscular structures which hold the uterus in its usual position. This may be effected by the exhibition of tonics, such as iron, arsenic, strychnine, etc., together with general massage, Swedish movements, and local treatment by electricity, tampons, douching, etc. The application of a well-fitting cradle pessary is at times found useful, sometimes allowing pregnancy to occur, which may be followed by cure, owing to the changes produced during involution. However, now and then, cases which resist these milder measures are met with, and then the only really sure and effective method of treatment is either to shorten the anterior vaginal wall, thus causing the cervix to be drawn forwards and the fundus to be lifted off the bladder, or else to open the abdomen and attach the fundus to the anterior abdominal wall at such a level that the possibility of vesical pressure is prevented.

We now come to the next variety, where there is posterior displacement of the fundus, and, as this is rarely uncomplicated by prolapse, retrodisplacements and prolapsus will be considered together. Where the fundus is turned posteriorly, one's first efforts should be directed towards its replacement by methods which are too familiar to those present to require any description here. When one has been successful in restoring the uterus to its natural position and the perineum and vaginal walls are not too relaxed to afford proper support, much relief may be experienced

after the insertion of a properly fitting pessary, preferably a Hodge. In cases which are of comparatively recent occurrence, say within eighteen months, this may in time effect a cure, especially if pregnancy supervenes, involution aiding in restoring the uterine supports to their normal condition. While fixity of the uterus or any inflammatory condition of the adnexa or vagina contra-indicates this method of treatment, pregnancy does not at all preclude it. You may even frequently prevent a threatened abortion in the earlier months by carefully replacing the uterus, inserting a pessary, keeping the patient in a condition of absolute rest, and administering sedatives.

Where the patient has a moderate degree of prolapse with but very slight retrodisplacement, much benefit will result from rest in the recumbent position for several hours each day, combined with local pelvic treatment, by the application of iodine to the vaginal fornices and the use of tampons saturated with some astringent solution, such as the glycerine of tannic acid. This, persevered in for some months, will give many patients, especially older women, considerable relief.

What are we to do for long standing cases of retrodisplacement, and especially those complicated with laceration of the perineum? Here the only method of cure is by operation. This is no occasion to open up a discussion on what supports the uterus, whether it is entirely supported from below or from above, or both, so that we shall take it as granted that the uterus is not only held in place by its several ligaments but that it also receives support from the various structures forming the floor of the pelvis, and that the intra-abdominal pressure aids in keeping it in its normal position of slight ante flexion. In those cases of retrodeviation with slight prolapse, some operation on the uterine ligaments or the attachment of the fundus to the anterior abdominal wall will suffice.

In the vast proportion of examples of this condition with which one meets, there will be more or less congestion or chronic inflammation of the parts, so that one's first efforts should be directed towards its amelioration or cure before proceeding to operate. The importance of this fact is frequently overlooked, and this accounts for a certain percentage of symptomatic failures after operation.

Let us now consider the operative treatment of retrodisplacements which are uncomplicated by any loss of perineal support. There are three routes by which one may operate for this condition; namely, *per vaginam*, through the anterior abdominal wall, or subcutaneously, and each has its adherents and opponents.

The subcutaneous is the old-fashioned method of cutting down upon and shortening the round ligaments at the external inguinal ring, after the method of Alexander and Adams, or some modification of the same. The great advantage of this operation is the fact that the peritoneal cavity is not invaded, while the two great disadvantages are, first, that the ligaments on which you rely for support of the uterus are structures which are already weakened, thus necessitating the wearing of a pessary for several months after operation to hold the uterus in position while the ligaments are regaining their tone; and secondly, the impossibility of inspecting the condition of the pelvis contents. The preservation of the inviolability of the peritoneal cavity was formerly a great gain, but with the improved surgical technic this argument has lost much of its force.

By the vaginal route, either the round or utero-sacral ligaments may be shortened or vaginal fixation done. In both cases the abdominal cavity is opened so that the adnexa can be directly palpated, or even inspected visually; but this method has no advantage over an incision through the anterior abdominal wall, other than the lessened risk of a post-operative hernia where a vaginal colpotomy is done, though, with careful suturing and the healing by first intention which one ought always to obtain in these cases, there is but little chance of this sequela occurring. It may also be urged that the patient does not require to remain in bed as long after operations by the vaginal route as where the peritoneal cavity is opened from above, but the few extra days' rest necessitated by the latter will give the parts just so much longer time in which to regain their normal condition.

When the peritoneal cavity is opened from above, the operator has the choice of attachment or shortening of the round ligaments or ventro-suspension or fixation. Of the two operations in which the round ligaments are involved, the method followed by Gillian is decidedly the best, and, lest this method is unfamiliar to all of those present, perhaps it will be well to describe it briefly. After opening the abdomen in the usual manner, the anterior sheath of the rectus is dissected off from the muscle as far as its outer border. A pair of sharp-pointed forceps is thrust through the fascia and peritoneum at this point, and a loop of the round ligament seized and drawn through the opening and over the rectus to the middle line. A similar procedure is carried out on the opposite side. The fundus is thus closely approximated to the peritoneum of the anterior wall and held in that position until the incision in

the peritoneum is closed by suture, after which they are fastened together by interrupted catgut sutures and the rest of the incision closed. Care should be taken in this, as in all other abdominal attachments of the uterus, to fasten that organ at such a level that there will be no injurious pressure exerted on the bladder.

Ventro-suspension and ventro-fixation are two separate and distinct operations, each having its own indications, and they should never be confused. Both involve the attachment of the fundus to the anterior abdominal wall. In both, the sutures should be passed through the tip of the fundus to the extent of about half an inch in length transversely and one-quarter of an inch in depth, the anterior suture running along a line joining the uterine extremities of the round ligaments and the second just sufficiently far behind it to provide that punctures, made by the forceps which have been employed to hold the uterus in place during the passage of the sutures, will be covered by the peritoneum of the anterior abdominal wall, thus lessening any danger of the formation of adhesions between the bowel and fundus. In the case of the fixation, the sutures are passed through the peritoneum and any fascia which may be found posterior to the rectus, the fundus being permanently held close up to the anterior abdominal wall; whereas, if one wishes simply a suspension of the uterus, the fascia is carefully avoided. In either case, however, it will be well to include the urachus in the sutures, as this only adds to the strength of the ligament formed. In the suspension, a false ligament develops which allows of considerable free play of the uterus in the pelvis, and yet holds it sufficiently firm to prevent its return to its previous malposition. Of the two, suspension should be done in all cases in which there is the slightest chance of the patient becoming pregnant, the fixation being reserved for those patients who have already passed the menopause or who, for any reason, you have had to sterilize.

Of course, occasionally, some post-operative inflammatory process will convert a suspension into a fixation, but that will rarely happen if one is careful in one's technic and the manner in which one handles the uterus. As regards after effects, the fixation is the more permanent, as you would suppose, but a relapse of the uterus to its old position is rare if the patient has a fair chance to take care of herself for some months after leaving hospital. Pregnancy should be avoided for one year after operation, but even where this does take place within the specified time, in the majority of cases the uterus will be found well to

the front after delivery. Notwithstanding the argument of those opposed to this operation, that it interferes with subsequent pregnancies, this has not been the experience of the writer. Where the suspension has become a fixation, or where the sutures have been passed well down the posterior surface of the uterus, one would expect to have abortion, premature labour, or dystocia, and the expectation is sometimes fulfilled, but that is not the fault of the operation, but of the operator.

Unfortunately, I have not been able to collect sufficiently exact statistics of my own cases for them to be of any value, but, in those which I have been able to follow, dystocia or premature labour has been vastly the exception, and recurrence of the malposition after delivery has been rare.

We must turn now to patients who have posterior displacement complicated with a greater or less degree of prolapse. Here it is absolutely necessary to do some sort of plastic work upon the vagina in addition to one of the above mentioned operations, if lasting benefit is to be expected, the nature of this plastic work depending upon the lesion in the pelvic floor and the individuality of the operator.

Where one has procidentia in a woman past the menopause or who has been sterilized for any reason, complete vaginal hysterectomy with a double colporrhaphy will be found to give the best results. This is certainly a radical procedure, but in these women the uterus is a useless organ, the operation is no more dangerous in the hands of an expert than plastic vaginal work added to the necessary abdominal operation, and the results, both immediate and remote, are excellent.

One more point and I will close. Should a woman with a displaced uterus which is giving rise to symptoms be subjected to operation for this condition? If it is going to give her any relief, most emphatically, "Yes." Against this, it is argued by many physicians, that the next delivery will tear the vaginal wall again as badly as it was before. Granted the possibility, but is there to be a next pregnancy? No one can be sure, and, if there is, and the vagina does tear, the physician can immediately repair it, restoring the parts to their original condition. There is no reason why the woman should not have relief from that dragging sensation or pain in the back, from which so many of these sufferers complain, in between their pregnancies. I know that this suggestion will receive some opposition, but to my mind I fail to see how any man who has seen the woman dragging herself through her dreary day's

toil before the uterine supports have been repaired and again seen that same woman going about her work with comparative, if not absolute, freedom from these manifestations, can be of two minds upon the question.

"THE chief feature of nail extension appears to be in fractures of the long bones, such as the femur, tibia, humerus, radius, and ulna, with marked displacement or comminution of the fragments, or extensive laceration of the soft parts, and also in cases where the occurrence of shortening after union requires re-fracture. As compared with the sole use of splints, it has the great advantages, as stated by Voekler (*Deut. med. Wochensch.*, No. 2, 1911), of providing more efficient extension, preventing retraction of the soft parts, enabling complicated fractures with extensive trauma to be easily managed without pain, and of permitting early movement of the neighbouring joints. As compared with approximation of the fragments by plates, wiring, or sutures, it has the advantage of a less complicated technic, of inflicting less trauma, and of being within the reach of those who have not had a wide experience in bone surgery; in other words, it is to be considered simply as an auxiliary in the securing of better results from the extension treatment in certain cases."—*International Journal of Surgery*.

"THE sacro-iliac joint is a true joint and admits some motion normally. It may be subjected to strain or complete subluxation as well as to the diseases which affect other joints. The pelvic girdle is the main support of the trunk, and when relaxed either by disease or physiological processes may jeopardize the sacro-iliac joint, causing a loose sacrum or an actual subluxation of the joint. Many of the sciaticas are due to a slipping of the sacro-iliac joint, and many of the backaches, especially in women, are caused by sacro-iliac strain. Faulty attitude and flat foot in young and old may predispose towards sacro-iliac joint strain. A pendulous abdomen may strain the joints giving rise to subjective symptoms. Direct or indirect muscular violence is one of the common causes of strain in these joints, as is likewise a general debility, whether due to the weakening results of disease or general subonygenation. Gynæcological cases which present symptoms of backache which have not been relieved, are very often the result of trouble in the pelvic girdle."—*Surgery, Gynæcology and Obstetrics*.

TRAUMATIC LESIONS OF THE CORD WITHOUT INJURY TO THE SPINAL COLUMN

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THE spinal cord constitutes that portion of the cerebrospinal axis extending in the adult from the medulla oblongata to the lower border of the first lumbar vertebra. Briefly, its structure comprises (1) a white substance made up of medullated nerve fibres without neurilemma, these being embedded in a form of connective tissue—the neuroglia; (2) the grey matter, consisting of a thick felt work of fine medullated nerves and nerve cells with their processes, these in turn being supported by the neuroglia. Fibrous processes pass in from the pia and acts as a scaffolding for the nervous elements, at the same time permitting blood vessels to enter the cord.

From the standpoint of traumatic lesions of the cord, the vascular supply is of very great importance, so that it should be dealt with more in detail. There are three main arterial trunks supplying the spinal cord, one anterior and two posterior. The anterior lies in the pia mater of the antero-median fissure; the two posteriors lie on the dorsal aspect of the posterior roots. From the anterior vessel arises a central artery, which in large part goes to the grey matter of the anterior horn, each succeeding vessel going to alternate sides of the cord. Encircling the cord and lying within the pia is a vascular anastomosis formed from all the trunks, and arising from it are the peripheral branches which penetrate the cord along the line of the various septa. With such an arrangement we find that all the grey matter, except the posterior half of the posterior horns and the caput, is supplied by the central arteries; the remainder receives its blood from the peripheral vessels. Consequently, between these two areas of supply is a zone which derives its nourishment from both sources, but the anastomosis between the two sets is very scanty indeed, Kadyi maintaining that the vessels are in reality terminal arteries. There is, likewise,

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a marked difference in the vascularity of the grey and white matter, the former being much more richly supplied with blood vessels running a very tortuous course.

If one were to judge of the importance of cord injuries, separated from those of the spine according to the ordinary text-books on surgery, the conclusion arrived at would be that the condition is a very rare one indeed. Hamilton devotes half a page to its discussion, but apparently he has never seen a case, as he speaks only of what others have observed. Dana says it may occur in old age from rupture of a spinal artery, as in the brain. He refers to the symptoms coming on with a feeling of numbness or weakness for one or two hours or longer, then a sudden paraplegia with anæsthesia or ataxia or both. The "American Practice of Surgery" has a note to the effect that it may occur and produce the symptoms of a Brown-Sequard paralysis. Williamson thinks that primary hæmorrhage into the cord is exceedingly rare. Many cases, he believes, diagnosed as primary hæmatomyelia, have been shown to be due to a myelitis or other lesion, or to a myelitis with secondary hæmorrhage.

That primary hæmatomyelia is not nearly so rare as these authorities suppose, I hope to be able to show, believing that the real nature of the injury is not infrequently misinterpreted, and the case reported as one of fracture, or fracture dislocation, of the spine with crushing of the cord. Thorburn reported twenty-one cases of spinal injury, and six of these he interpreted as examples of primary hæmatomyelia. Of these six cases only one came to autopsy, and in it there was no bony lesion. Of seven fatal cases of spinal injury reported by Parkin, the column was normal in one, and Stolper found two cases with an intact spine in twenty-two autopsies on spinal injuries. Bailey reports three instances, in each case the individual having dived into shallow water.

As to the ætiology of primary hæmatomyelia there is considerable difference of opinion. Some think that the commotion transmitted to the cord is the essential factor, and there are reported cases which appear to lend support to such a belief. For example, Bailey reports a case of secondary hæmatomyelia with a local spinal injury, in which the whole length of the cord showed disseminated, punctate hæmorrhages, generally too small to be recognized by the naked eye. That such an explanation will not apply to the majority of instances, however, is evident, as it fails to explain why nearly all the cases are localized in the lower cervical region. Allen, of Philadelphia, thinks the hæmorrhage to be of

purely hydraulic origin. He recognizes that, as a rule, there is marked flexion of the spine, and as a consequence the blood is forced into the antero-median fissure with a resultant increase in the pressure of the central arteries which rupture. The same explanation is advanced in those instances which are not associated with overflexion, the anterior trunk being generally involved because of the straight, vascular channel. A much more plausible theory is that which assigns overflexion, or hyperextension, as the causative agent, the stretching of the cord causing a rupture in the most vascular area; namely, the grey matter. With this must probably be associated some solution in the continuity of certain nerve fibres, but this is in most instances of very little importance. Upon this theory the usual site of the hæmorrhage in the lower cervical region, where flexion and extension are greatest, is readily explicable. Stolper recognizes the true ætiological factor in that he describes these cases under the heading of "traction hæmatomyelia." Fischler notes that violent dragging on the caudal roots may cause destruction of the conus, the spine remaining free from injury. In a case of brachial plexus injury from traction, which I showed to the academy of medicine last winter, there were cilio-pupillary changes with exaggerated knee jerks, the patient complaining four or five months after the accident that he had not the same use of his legs as formerly, this being especially noticeable on going up or down stairs.

Trauma plays the most important part in the causation of primary cord hæmorrhages, accounting for at least ninety per cent. of the cases, the form of injury being, as a rule, sudden, forcible flexion of the spine. This may be brought about in a variety of ways. Probably the most common accident is diving into shallow water, or riding under a low archway. It may result from falls on the back, buttocks, or feet, and usually the distance traversed is not great. In other instances, the individual receives a blow on the back. According to Oppenheim, the second most common ætiological factor is violent muscular strain. He refers to the occurrence of hæmorrhage in a man while lifting a heavy box, and another followed immediately after a strenuous game of bowls, but one would have to presuppose some pathological changes in the blood vessels, otherwise rupture should have taken place at the time of maximum exertion, in the latter case. That the hæmorrhagic diathesis favours the escape of blood, is shown by the same author's case of cord hæmorrhage occurring in an individual while breaking a piece of wood with his foot. Schultze des-

cribes a case in the newborn, the mother having a difficult labour. In one instance, great sexual excess is given as the cause, and such a causative agent had the endorsement of Gowers. It is reported as a complication in the severe vomiting of pregnancy. Whether or not there are pathological changes in the spinal arteries in the majority of cases, is not definitely known, as very few cases come to autopsy. Certain it is, however, that at a time when inquiry would be fruitful, arteriosclerosis very rarely bears any causal relationship to the hæmorrhage, a marked contrast to the vascular lesions in cerebral bleeding. Since traumatism is the chief ætiological factor, it follows that males make up the majority of cases, and they are usually between the ages of twenty and forty-five.

Usually the membranes and outer aspect of the cord are of normal appearance, the hæmorrhage very rarely showing upon the surface. In the great majority of cases the bleeding is confined to the grey matter, most probably because it contains many more vascular channels than the white, and the supporting tissue is less abundant. The extravasation may be localized to a single area, which on incision leaves a cavity, or it may be scattered over a cross section in small patches, as in the disseminated variety. It may plough up the whole grey matter of one or more segments, or attack the grey matter of one side only. In other instances, the lesion is confined to an anterior or a posterior horn. Minor describes a case which he calls hæmatomyelia annularis, in which the blood poured out into the grey matter formed a ring or tube. When the white matter is primarily involved, it is usually in small patches only, and there may be no demonstrable lesion in the grey matter, although from a study of the literature this is a very rare occurrence.

Whatever the site of the hæmorrhage, the surrounding areas are, for sometime at least, rendered more or less functionless from pressure and cedema. There is a much greater tendency for the blood to extend in a vertical, than in a horizontal, direction. Goldshreider and Flatau found by injecting coloured solutions that the grey substance offered a readier pathway than the white, and that the ventral portion of the posterior horn was the area which permitted of easiest extension in the white matter. There is little tendency for the hæmorrhage to extend in the central canal. So long as the commissure is not mechanically destroyed, the blood extends independently in each half of the cord. Bailey thinks that in the majority of hæmatomyelias the bleeding extends through three or four segments and generally farther brainwards than towards the caudal end. In such instances, too, the extension

upwards is usually on the opposite side to the lower. Whenever the hæmorrhage is at all extensive, it may extend into the lateral columns, or there may be, in addition, isolated, minute extravasations in the white matter. According to Minor the blood may be absorbed in six weeks, and a scar formed from the adventitia of the vessels, and of greater or less extent, depending upon the amount of the extravasated blood. In other instances, cysts, to which van Gieson has given the name of hæmatomyelopores, are formed, and generally in the posterior horn. They contain a clear or slightly-tinged fluid with cholesterin, and on account of their position are believed by some authorities to be the starting-point of true syringomyelia.

In still other cases a traumatic myelitis supervenes. Histologically this may be divided into three stages: (1) Red softening with the cord thickened, reddened, and softened, the microscope showing congested vessels surrounded by leucocytes mainly of the polymorphonuclear variety. The axis cylinders are swollen, fragmented, or some may be atrophied, and the myelin sheaths are degenerating. The ganglion cells stain irregularly, while the glial cells are increased in number. Granule cells, supposed to be derived from the connective tissue, make their appearance and are filled with débris. (2) Yellow softening. Here the glial cells are degenerating. Ganglion cells are further destroyed, so that they show vacuolation, or the nuclei may be absent. The granule cells are more abundant. In very severe cases the cord is reduced to a pultaceous mass composed of fat globules, granule cells, and detritus. Should the patient live long enough, the end stage is reached in which the cord is shrunken and of somewhat hard consistence. The nervous elements are replaced by scar tissue, in part derived from the glia and prolongations from the pia, but in larger part from the adventitia of the blood vessels.

The symptoms produced by a primary hæmorrhage into the cord vary considerably, depending upon the site and extent of the lesion. As previously observed there is nearly always a history of injury followed by a sudden onset of the symptoms. At first the temperature is normal, although there may be a subsequent rise, and the pulse will be accelerated if there is much shock. As a rule consciousness is not lost, and when not retained it indicates a complicating cerebral lesion. In a severe case the symptoms are those of a transverse injury with a paralysis developing in a few minutes. If the usual seat is the site of the hæmorrhage, there will be the signs of a transverse myelitis with total anæsthesia in the trunk,

arms, and lower extremities, the upper limit of sensory loss coinciding in front with the supply from the descending branches of the third and fourth cervical nerves. The bladder and rectum are paralysed, and the individual will have no knowledge, except through sight, of the position of the limbs. The reflexes are abolished, both superficial and deep. If the hæmorrhage affects one side of the cord more than the other, the pupils may be unequal with some ptosis and enophthalmos. In a less severe case the hæmorrhage may be confined to one side of the cord, when a Brown-Sequard form of hemiparaplegia results, with a flaccid paralysis below the lesion on the same side which later becomes spastic. A permanent flaccid paralysis results, with subsequent atrophy in those muscles supplied by the injured segment, and loss of pain, heat, and cold on the opposite side, below the level of the lesion. Deep sensibility is retained on both sides, but touch is variable, the rule being, however, that it is usually retained.

In cases where the hæmorrhage is still further localized, one gets the condition known as diplegia brachialis traumatica, where the bleeding occurs into variable nuclei of origin of the brachial plexus, a condition formerly ascribed to extramedullary hæmorrhage or tearing of the roots. But as sensory symptoms are usually absent, such an explanation is inadmissible and if paraplegic manifestations accompany the motor loss in the arms they soon pass off, leaving a spastic condition behind, which presents a striking similarity to amyotrophic lateral sclerosis or progressive muscular atrophy. Should the hæmorrhagic area be still further limited and involve only some anterior horn cells of one side, then the end result would differ in no essential from an anterior poliomyelitis.

From the sensory side, the most characteristic feature, if examined after a certain amount of recovery has ensued, is for tactile sensibility to be normal or only slightly impaired, while the patient is totally unable to appreciate the sharpness of a pin prick or distinguish heat from cold. Some can feel the pin prick but are unable to tell heat from cold, and vice versa. Others have the faculty of telling when a test-tube is hot, while a cold tube fails to convey the accustomed sensation, and the same holds in a reversed manner. As a rule, the loss to pain is less than to heat and cold. In making these sensory tests the examiner must exercise the utmost care and patience, else he will surely be deceived. For instance, when testing for pin prick, the patient with closed eyes must say that he feels in every instance the sharpness of the prick, as with tactile sensibility present he will invariably experience a sensation when the part is

pricked, but with analgesia the prick will be interpreted as a touch.

Pain is usually present, both spontaneous and on movement, and may be fairly localized to the affected part. If there has been much laceration of the adjacent tissues of the neck, there will be swelling and pain on motion. If the case be a pure primary hæmatomyelia, then one would not expect to have present the shooting pains characteristic of a root lesion. The patient may complain of numbness in the legs for a short time after the paralysis, but this is only temporary. In an uncomplicated case, there is no tenderness over the spines, no restriction of the movements of the head and neck, and no pain on jarring the head. In addition, one finds in common with general cord injuries, bed sores, priapism, œdema, chills, and fever, but there is nothing distinctive about these.

With a history of injury or violent muscular strain, and a paralysis of sudden onset following a few moments later, provided the spine be uninjured, the diagnosis of primary hæmatomyelia can safely be made. If, in addition, there is dissociated anæsthesia, all reasonable doubt is dispelled. An x-ray photograph may be of value in demonstrating the presence of a fracture or fracture dislocation, but the plate may show nothing abnormal, and the autopsy prove that a dislocation had occurred with a resultant pulping of the cord, the bones having sprung back into position. A good example of such an occurrence is recorded by Allen in the *Journal of the American Medical Association*, 1908, a student having met with such an accident while wrestling. "We are all familiar," says Allen, "with the picture of a man who receives an injury to his spine, and careful examination fails to reveal any deformity, crepitus, ecchymosis, or other sign of fracture, but there is complete or partial paralysis present of the segmental nature, and if it goes to autopsy there is no bony lesion, and there may be even a fair amount of firmness in the ligamentous binding, but the cord shows signs of compression opposite an intervertebral disk."

He is not very explicit about the changes found, but I am convinced that such a picture is not, as he describes, typical of a self-reducing dislocation with an irretrievable pulping of the cord, but one of primary hæmatomyelia in which the hæmorrhage has affected more or less of the cord in a transverse direction with a superadded myelitis, in which case the cord would readily present the appearance of having been compressed. Moreover, it is not always safe to argue that because a certain vertebra is fractured, with attending paralysis, that the cord has been crushed, for Thorburn has reported

cases where the third cervical vertebra was fractured while the cord was damaged opposite the fifth, showing very clearly blood extravasation from overstretching to be the cause of the symptoms. The same author describes cases of injury to the lumbar spine, with an associated weakness of the arm, the latter again being caused by a primary cord hæmorrhage, and Bailey relates cases of a similar nature. In this connexion it is to be remembered that, in bony compression of the cord from fracture or fracture dislocation, the secondary hæmatomyelia has much to do with the consequent paralysis, as was long ago pointed out by Thorburn, although Bailey holds quite the opposite opinion. But if Bailey's view be correct it would be impossible to explain those instances where pain, heat, and cold are lost above the crushed segment, touch remaining normal, whereas a hæmorrhage extending brainwards would make everything clear.

As an aid to differentiation between primary and secondary hæmatomyelia, pain may be a very important factor. In two of the cases, the details of which I shall give later, it was absent. One would think that in an injury involving the fifth and sixth cervical vertebræ, that the patient would complain of pain on jarring the top of the head; yet Thorburn quotes a case in which no pain was experienced. So, too, tapping the vertebral spines or passive movements of the head and neck may elicit pain in the absence of any injury to the bony framework, being most probably due to the tearing of muscular and ligamentous attachments. A further aid in deciding whether the cord has been more or less pulped, or is the seat of a primary hæmatomyelia, is to be found in the progress of the case. An individual with a pulped cord in the cervical region will probably die within a week, the mortality being very high, whereas if hæmorrhage from stretching has been the cause he will tend to improve. Thus, Minor reports a case, totally paraplegic at first, who could stand at the end of a week; one of Thorburn's cases was nearly well in a month, some weakness in the grasp remaining; while Bailey's case was able to walk in six weeks with sensation practically normal in two months.

Meningeal hæmorrhage is, as a rule, easily differentiated, the most marked features being the irritative root phenomena, especially severe radiating pains with hyperæsthesia and paræsthesia combined with muscular rigidity in the area supplied by the roots. Paralysis follows later. It is difficult to see, however, how a pure hæmatorrhachis could produce any very marked symptoms except upon the cauda equina, as the blood extravasated higher up, if under

any tension, could readily distribute itself over a large surface. Bailey states that all the weight of pathological and experimental evidence is against hæmorrhachis itself being the cause of any but transitory symptoms, and that surgical aid is therefore never required, the same being true for subdural extramedullary hæmorrhages. In short, if cord symptoms are present after the shock has passed off, the case is not one of pure meningeal hæmorrhage.

Another condition which must be differentiated is acute myelitis. As previously remarked, Williamson is of the opinion that most cases diagnosed primary hæmatomyelia are examples of acute myelitis. In the latter condition, however, there are practically always some prodromal symptoms, such as numbness and tingling in the legs, previous to the event of the muscular weakness. Some malaise and fever are almost constant, and the paralysis takes days to reach its height. Still, there is a form described in which the paralysis reaches its height in one to two hours; namely, apoplectiform myelitis, such instances being most probably thrombotic in origin and lend weight to the theory held by some observers that myelitis has its origin in a gradual softening, the result of thrombosis in minute spinal blood vessels. In what is known as hæmorrhagic myelitis there are slight signs of inflammation of the cord for a few hours, then very severe symptoms suddenly ensue from a consecutive hæmorrhage.

Spiller considers it impossible to make a diagnosis during life between traumatic myelitis and hæmatomyelia. He quotes the case of a man who fell eight feet on the face; was unconscious for several hours; had no control over bladder or rectum; knee jerks were present; could draw up legs but the movement was much impaired; could not move fingers, but had fair control over arms and shoulders; touch was normal, while temperature and pains were much impaired over trunk and legs and slightly over arms. Two weeks after the accident the restoration of power in the lower limbs was remarkable, and on the thirtieth day he could feebly move the fingers of each hand. Death occurred on the thirty-eighth day, and autopsy showed distinct evidence of myelitis. Evidently, then, this was a typical example of primary hæmatomyelia, with very rapid improvement for about four weeks, when a complicating myelitis ensued, and not, as Spiller believes, a case illustrating the impossibility of differentiating between hæmatomyelia and traumatic myelitis.

Should the patient be seen some weeks after the injury, syringomyelia might cause some difficulty, as the dissociated anæsthesia may be the same in each. It is a disease, however, in

which the onset is very gradual and usually progressive, while a history of onset following an accident will not likely be obtained.

Hysteria is known to simulate any organic disease. The muscles may be atrophied to the same extent as in a nerve lesion, but they respond briskly to the faradic current, which at once settles the diagnosis. On the sensory side, there is frequently hemianæsthesia or stocking anæsthesia of the peripheral nerve type, in which touch, prick, and deep sensibility are all imperceptible over the same area, a condition which never obtains in an organic nerve lesion.

In infantile paralysis where, as occasionally happens, the adjacent cord areas are affected, there might be some resemblance to hæmatomyelia, but here again one finds fever, and very seldom indeed are the bladder and rectum involved. In addition the patient is practically always a child, while in hæmorrhage the individual will have received an injury at the most active period of his career.

But it is in the progress of these cases that they differ so markedly from cord injuries, the result of bony violence. The latter may show some improvement, but nothing to compare with the amount and rapidity of recovery seen in many cases of primary hæmatomyelia. I have already pointed out that patients, paralytic from primary hæmorrhage into the cord, were not infrequently able to walk in a month or six weeks, an outcome sufficiently conclusive of hæmorrhage apart from bone deformation. If there has been a flaccid paralysis with absence of reflexes this soon changes to spasticity and exaggerated jerks. Those muscles whose cells of origin have been destroyed remain flaccid and atrophy, giving the reaction of degeneration. The tendency is for the sensory disturbances to return to normal again, but of course there is never complete restoration, although the patient may be, and generally is, unaware of any loss. Pain usually shows an earlier return than heat and cold. Bed sores do not occur in the milder forms, or if present soon heal up. But in the severe cases they, as well as cystitis, are very troublesome indeed, and are the most frequent causes of death. As a rule, the paralysis is complete a few minutes after the injury, but occasionally it does not reach its height until the lapse of an hour or two, such being most probably due to a continuance of the hæmorrhage. To be distinguished from such a case, however, is one in which, several hours after the accident that produced the paralysis, there is an exacerbation of the symptoms, and then the most likely explanation is a complicating myelitis.

The prognosis in primary hæmatomyelia, when compared with cord lesions secondary to spinal column injuries, is very good indeed; although the majority of the patients will be more or less maimed for life, death is the exception, and the majority of the symptoms clear up.

The following are three cases which have come under my observation during the past year :

I. J. S., aged sixty-five, a tailor. On January 5th last the patient was walking along the street when he suddenly slipped and fell, alighting on his back. There was no loss of consciousness, but there was immediate paralysis of arms, trunk, and legs, with total abolition of sensation. At first he had no control over the bladder and rectum, but in a few days these acted in a fairly normal manner. He says that he experienced no pain in the back or neck at the time of the accident, and he could be moved without any discomfort whatever. In a few days sensation began to return and he was admitted into St. Michael's Hospital on February 4th, about one month after the accident. At that time he showed the following condition: All the muscles of the arm, forearm, and hand were spastic and reacted normally to the Faradic current. The forearms were somewhat flexed, as were also the fingers and thumbs. All the movements were present but very weak, the right side being considerably better than the left. The legs were spastic with increased knee jerks, slight ankle clonus, and Babinski's sign. Touch was almost normal everywhere, but pain, heat, and cold were very much lessened, especially in the legs. Both pupils were small. Temperature and pulse were normal, and there were no bed sores. On the left occipital region was a scar, the result of a scalp wound at the time of the fall. About four weeks later all the movements were very much improved, so that he could walk with a little assistance, while the sensation of prick was almost normal, except over the legs, where it was not quite as sharp as elsewhere. The sensations of heat and cold had also improved wonderfully, but were still deficient for the epicritic tests over both legs. In this instance the location of the hæmorrhage must have been in the crossed pyramidal tracts in the region of the fifth cervical segment, and is noteworthy in that the grey matter was not involved.

II.—J. G., aged forty-seven, was going upstairs last August 5th, when he fell backwards, alighting on his back between the shoulders. Consciousness was retained but the legs were immediately paralysed. The arms, he thinks, were not rendered helpless until about one minute later, and they gave two or three jerks before lying limp.

At the time of the accident he did not feel any pain, but in a few hours had severe pain in the arms, legs, and perinæum. The bladder was paralysed at first, but he could always feel the catheter being passed. On the day after the accident he could tell when the bowels wanted to move, but couldn't hold the motion. He thinks "feeling" began to come back in about three weeks on the inside of the right ankle, and movement returned in the legs in about five weeks. In six weeks he could micturate himself.

The patient came to St. Michael's Hospital about the middle of May, 1911, when he presented the following condition: The forearms were flexed on the arms, and the hands on the wrists, while the muscles of the shoulder girdle, arms, and forearms were spastic. In both hands the fingers were hyperextended at the metacarpal phalangeal joints, especially in the little finger of the left hand, and flexed at the other joints. Flexion and extension of the fingers was very limited, the left being the better. Abduction and adduction of fingers could not be performed, as the interossei muscles were atrophied and failed to react to Faradism. The muscles of the thenar eminence, however, reacted in a normal manner to that current, as did all the other muscles of the upper extremity except the flexor carpi ulnaris and portions of the flexors of the fingers on the right side. On the left side, in addition to the atrophied interossei, the flexors of the fingers were much atrophied, and only parts of the muscles reacted to the interrupted current. The nails of the fingers were much rounded and had well marked longitudinal striæ. Both hands were rather typical of the *main en griffe*. The muscles of both legs were spastic but without contractures. The knee jerks were exaggerated and there was ankle clonus and a positive Babinski sign. He could perform all the leg movements, but abduction was very limited owing to the condition of the adductors. The right pupil was considerably smaller than the left.

On the sensory side, touch was normal everywhere, except on the hands, back and front. On the legs there was a patch extending from the left, anterior, superior spine to about two inches above the knee, and reaching to about the midline, back and front, which was almost insensitive to pain, heat, and cold. On the front of the chest, from about two inches above the nipples to the pubis, was an area with loss to heat and cold, with prick loss much more marked on the left side. On the right arm, from the junction of the upper and middle third to the wrist, pain, heat, and cold were not readily perceived, and the corresponding area on the left side

was similarly affected, except that the heat loss was greater than that to cold. Temperature and pulse at the time of examination were normal. In this case the hæmorrhage had involved the grey matter of the anterior horns in the region of the eighth cervical and first dorsal and possibly the seventh cervical, the surrounding tracts being secondarily affected.

III.—L. W., aged twenty, dived into shallow water on July 1st last, and was at once removed to St. Michael's Hospital under the care of Dr. E. E. King. He was immediately rendered paraplegic, and when reached by a companion the head was flexed upon the chest, and the legs were doubled up under him. There was no loss of consciousness. Temperature and pulse were normal. On examination, the day after the accident, he was found to be totally anæsthetic below a line some two or three inches above the nipples, including the arms. The bladder and rectum were completely anæsthetic, and the patient could not feel the insertion of the catheter. The diaphragm was acting normally. All reflexes were abolished. On examination of the neck, nothing abnormal could be made out. There was absolutely no limitation of the movements, no pain on tapping the vertebral spines or on jarring the top of the head, nor at the time did the patient complain of any spontaneous pain. Both pupils reacted to light, but the left was much larger than the right. Bed sores developed in a few days, but he left the hospital in a fortnight after admission. He fell into the hands of an osteopath and I have not been able to make a proper examination since, but he is still bedridden with extensive bedsores and marked atrophy of the muscles of the hand and forearm.

"The importance of oral sepsis as a cause of disease is a matter which is receiving an increasing amount of attention every day, and has had of late some brilliant exponents, those especially worthy of note in this country being William Hunter, who has traced many cases of severe anæmia to this cause, and Kenneth Goadby, whose most recent work on the subject deals with arthritis produced by an organism of the mouth."—*British Medical Journal*.

ECLAMPSIA

BY H. L. REDDY, M.D., L.R.C.P. (LOND.)

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THE correct term should be the autotoxaemia of pregnancy, but the older term is commonly used as its equivalent; as long as this fact is recognized there is no objection to the term "eclampsia." We shall first consider the ætiology, then prevention and treatment.

ÆTIOLOGY. The exact toxin causing convulsions and its exact mode of production are as yet unknown. The belief that it is some placental fault causing faulty metabolism or placental indigestion is accepted by many. We find first, very marked liver conditions, and we cannot do better than quote from a paper by Dr. H. L. Murray, of Liverpool. It may be said at once that these remarks do not apply to cases where there is already an existing chronic inflammatory lesion of the kidneys. By far the larger percentage of cases are advanced cases of toxæmia before the kidneys become affected; hence the absurdity of looking for albumen as an indication showing toxæmia with certainty. It may exist in fairly large quantities without toxæmia being present.

We find in the liver, degenerative changes widespread and varying in intensity. This degeneration is most marked towards the centre of the lobule and may proceed to a little, irregular necrosis. Again, although not invariably towards the surface of the liver, there is a peculiar condition of focal necrosis in the periphery of the lobule. And lastly, there is frequently seen towards the outer surface of the organ a certain amount of blood extravasation, especially in association with the necrosed areas. The important points here to be noted are the invariable degenerative changes occurring, and the absolute lack of relation between the clinical severity and the amount of necrosis seen in post mortem.

An explanation of these peculiarities is found in the complex nature of the toxin at work. It contains a hæmolytic, i.e., a cytolytic, element producing universal degeneration. This hæmolysis may be produced by the abnormal destruction of protein in the body. There is also present a hæmoagglutinative element which produces focal necrosis. The two processes of hæmolysis and

hæmoagglutination are closely associated, and are, to some extent, antagonistic. An increase in hæmolytic power by rapidly dissolving the red cells will prevent agglutination and hence necrosis. Hence the appearances may vary with the proportion of these one to another.

The hæmorrhages are due to the third element, which is known as endotheliolysin. Clinically it is apparent that there is a fourth toxic principle present, a neurotoxin. Dr. Murray sums this up as follows: There are four constituents of the eclamptic toxin, a hæmolytic, a neurotoxic, a hæmoagglutinative, and an endotheliolytic. Of these, only the first two can be demonstrated to be constantly present, although the third may also be there but masked. Endotheliolysis or extravasation may occur and prove fatal where the first two lesions were not of themselves sufficient to cause death. Experimentally all four principles of the eclamptic toxin are found in venom poisoning, but in varying degree, according to the particular venom. So close is the resemblance that Dr. Murray suggests that antivenin, which is perfectly harmless, should be given in large doses intra-venously in eclampsia. After a certain length of time, which varies in each case, if neglected the irritation caused in the kidneys by the toxin sets up a nephritis and albumen may then be found. If this toxic condition is grafted on an existing chronic nephritis, naturally the conditions rapidly assume a very grave aspect. We find in at least 30 per cent. of severe cases of toxæmia a very marked condition of placental degeneration, either fibrinous, fatty, or calcareous.

Another interesting point is the condition of the blood vessels in toxæmia. By the use of the sphygmomanometer, in all cases of true toxæmia an increase in the arterial hypertonus is found, and generally the amount depends on the severity of the toxæmia. The old idea of blood pressure, as Dr. Russell of Edinburgh shows, is really not correct, and what was formerly believed to be increased pressure is really a contracted, and hence thickened, vessel, which consequently is more difficult to compress, the contraction being in proportion to the amount of irritation caused by the toxin. If the hypertonus rises to 150 mm. Hg. it is stated that a convulsion is not to be prevented, and during the attack may run far above 250 mm. Hg., which in this case is doubtless due to a real increase of blood pressure as well as to the fact that the arteries are contracted to a still greater degree, this contraction being nature's attempt to prevent impure blood from circulating in as large an amount as it otherwise would do. There are cases in which there

is no lesion in liver or kidneys to be found, but the patient will often be found to be waterlogged, and by removing the excess of fluid which was causing the condition by simple pressure in the ventricles of the brain, the symptoms will rapidly disappear.

Some authorities hold that the thyroid gland is at fault and not functioning properly; hence the necessity for supplying, artificially, thyroid extract. In many cases the benefit derived from the treatment seems to bear out their contention, but in the majority of cases, unfortunately, it fails to act, and hence the thyroid cannot be held to be the seat of the trouble.

Edebohl's operation for decapsulation of the kidneys has been recommended and may prove of service when complete anuria exists, but as a regular form of treatment it is not to be recommended, as it has failed to relieve in the larger proportion of cases in which it has been tried.

PREVENTION OF ECLAMPSIA. Is this possible? Since it is late on in the toxæmia that the kidneys are affected, the examination of the urine for albumen as a guide to the condition is worse than useless. In most of the large modern clinics the urine is examined for urea. It matters not what the urea may be split up into, if the normal amount of about 472 grains a day be diminished it is necessary to give treatment to the patient or the condition may rapidly go on from bad to worse. I believe that this precaution is an absolute essential in every case of pregnancy, and symptoms of a toxæmia severe enough to kill may arise at any time after two and a half months, and some go as far as to say any time after six weeks.

Knowing that there are symptoms of toxæmia, however mild, present, which may rapidly grow worse, what treatment should be adopted? For very slight cases, probably calomel and soda, grs. *ii*, every second or third night, followed in the morning by a hot seidlitz, and the cutting out of meat and increasing the amount of milk taken, will be enough. In more severe types of toxæmia, it will be necessary to give the patient a hot pack one day and a purgative the next. Iron and digitalis, a skim milk diet and absolute rest in bed, are indicated. If the case becomes progressively worse and the treatment fails to improve the toxæmia, it then remains to consider seriously producing an abortion or premature labour.

What treatment would you use when the actual eclampsia has appeared? The newest, and probably the most successful, treatment is that introduced by the Russian, Dr. Stroganoff. It

has been lately tried by Dr. Roth in the Dresden clinic. In 360 cases there was a mortality of 6.6 per cent. for the mother and 21.6 per cent. for the child, which is a much better result than that obtained by immediate induction of labour, which shows a mortality of from 14 to 21.8 per cent. of deaths of mother, and 43 per cent. for child.

The treatment is as follows, and careful attention must be paid to every detail of this prescription or the results are apt to be singularly unfortunate. The patient is kept in a darkened room and as quiet as possible, in order to escape external stimuli. Reflexes are further checked by administering a small quantity of chloroform, 20 m., whenever catheterization, disinfection, or an enema is given. Even when a hypodermic is given it should be used. None but the nurse and medical attendants should be allowed in the room. The following are the instructions :

HYPO	—	0	hours	after	the	beginning	of	the	treatment	—	Morphia,	gr.	25
ENEMA	—	1	"	"	"	"	"	"	"	"	—	Chloral Hydrat,	grs. 30
HYPO	—	3	"	"	"	"	"	"	"	"	—	Morphia,	gr. 25
ENEMA	—	7	"	"	"	"	"	"	"	"	—	Chloral Hydrat,	grs. 30
ENEMA	—	13	"	"	"	"	"	"	"	"	—	Chloral Hydrat,	grs. 23
ENEMA	—	21	"	"	"	"	"	"	"	"	—	Chloral Hydrat,	grs. 23

Chloral should be given with milk or barley broth as an enema. Usually the convulsions cease at the end of the first day, but the chloral should be continued in doses of 15 to 23 grs. thrice daily, and even after the birth. As soon as the conditions are favourable to mother and child, labour is induced.

In the Women's Hospital, Montreal, in the last ten years all our cases came in convulsions or developed them shortly after entrance. The death rate of the mother was 4.5 per cent. and 50 per cent. for the children. The 50 per cent. mortality includes non-viables and children already dead. We have found that 20 to 30 drops of guaiacol rubbed on the abdomen and repeated in half an hour if necessary softened the pulse and lowered the temperature. We consider that it is of the utmost importance wherever possible to prevent injury to the tongue, as the pain produced when it is severely bitten tends to produce fresh attacks. We use hot packs, purgatives, drip salines, when possible, and also oxygen.

Delivery is performed by accouchement forcé, and, lately, by Cæsarian section when the os and cervix are not dilated or easily dilatable. From our results we feel quite justified in performing this operation.

I believe that in severe cases where the coma is continuous and the attacks have been numerous, the lumbar puncture, in addition to the other treatment, will often help. With such high hypertonus as exists during the attack, a certain amount of the watery constituents of the blood are driven out of the vessels, such as we find in the lungs, and as we found, in one case, in the brain, which was promptly relieved after an ounce of cerebro-spinal fluid had been drawn off. As a treatment alone for convulsions, of course it cannot be recommended.

In the French Maternity Hospital in Montreal, Dr. de Côtret, who is in charge, has kindly given me the treatment followed, and the results: Fluid extract of *veratrum viride* is used hypodermically and the pulse is used as a guide to the quantity and frequency of administration. If the pulse be above 100, ten drops are given, if from 100 to 120, twenty drops, and if above 120, from twenty to thirty drops. It takes thirty-five minutes for the *veratrum* to act. If the pulse does not fall to between 50 and 60 the dose is repeated, five, ten, fifteen drops as required, and the pulse is maintained there for from twelve to twenty-four hours. The patient must be kept absolutely recumbent and if the pulse drops below 40, morphia, gr. .25, is given hypodermically. If the cases that were absolutely hopeless on admittance or which died inside of an hour be taken from the deaths, the death rate is between 4 and 5 per cent. The death rate of the children is not given. Dr. de Côtret concludes that *veratrum viride* is really the specific for eclampsia. Bleeding freely was formerly used, but the results were not nearly as good as those obtained from *veratrum*.

In the Montreal Maternity Hospital under Drs. Little and Burgess the death rate has been about 10 per cent. for the mother, and in 31 cases under Dr. Little, nineteen children were either non-viable or born dead (or over 50 per cent.). Rapid dilatation or delivery seems to give the best results. Hot air baths, bleeding from 700 to 900 c.c., and the administration of large quantities of fluid have good effects. The patient is given 200 c.c. of water by mouth every twenty minutes, if comatose, by the nasal passages or by stomach tube or per rectum. Free evacuations of the bowels are effected by magnesium sulphate or croton oil in castor or olive oil. No milk is given in any case until the patient has been conscious for two or three days, and diuresis is well established.

Foreign statistics show from 6 to 17 per cent. of maternal deaths; foetal deaths, 21.5 per cent. and over.

If a conclusion may be drawn from the above facts as I read them, I would say:

1. Reduce the arterial hypertonus, by veratrum viride, guaiacol, bleeding, sweating, purging, or any combination of these.

2. Deliver as soon as possible, so as to get rid of the source of toxæmia.

3. Get rid of the toxin in the blood by the use of salines per rectum or water by the mouth, and free purgation and sweating.

Finally, the best treatment of eclampsia is to prevent it, which I am positive can be done if the patient will give one the opportunity to do so. Hence, it seems to me our duty to insist more and more on the importance of our patients consulting us after pregnancy has begun, and not have them wait until labour has commenced, or perhaps a convulsion set in, before they send for their physician.

"EACH case of diabetes mellitus must be treated as an entity. At first determine by an absolute diet whether sugar can be abolished from the urine. This accomplished, allow a single form of carbohydrate food in slowly increasing quantities, up to the point of excretion. Try to figure by tables of calories the amount of fat necessary to replace the diminished carbohydrates, and urge even a slight excess. Keep the proteids slightly above normal. Now and again, according to the age and severity of the case, insist upon one week's absolute regime, in order to rest the sugar-consuming function. Avoid drugs if possible, aside from tonics. Anticipate complications by examining the urine for acetone and its allies. . . . Treat surgical complications radically. Always hold out the hope of cure to your patient if he will coöperate with you, and insist on the hygienic rules as dictated by ordinary good sense. Remember that in those advanced in years the disease is frequently very benign, and needs little treatment beyond a reduction of the carbohydrates and an occasional week of strict diet."

—*American Medicine.*

THE SURGICAL TREATMENT OF ANTERIOR POLIOMYELITIS

BY A. MACKENZIE FORBES, M.D., MONTREAL

THE attack of the organism of anterior poliomyelitis is accompanied with much local disturbance to the cells about those actually affected. From hæmorrhage or œdema pressure paralyses arise, and many months may elapse before these paralyses and pareses disappear. Whilst the cells so affected are becoming regenerated, degeneration is occurring, not only in the muscles actually controlled by the nerve cells destroyed by the virus of anterior poliomyelitis but those muscles whose nerve cells were temporarily disorganized tend to be affected with a temporary or pseudo-paralysis due to stretching, that stretching which is due to lack of balance, that lack of balance which is due to the uncompensated tone of opposing and unaffected groups of muscles.

Thus, in these months of degeneration and regeneration surgical treatment must go hand in hand with neurological treatment, and this surgical treatment must aim at the prevention of pseudo-paralyses due to stretching and deformities due to contraction. It is at this particular time that rest from weight bearing is indicated, and that the prevention of stretching by the uncompensated tone of the unaffected muscles and by gravity must be guarded against by braces and mechanical appliances.

MECHANICAL APPLIANCES. It seems to me that these, then, have a distinct place in the treatment of anterior poliomyelitis but their place is a limited one, and although they are not alone indicated in the stage of degeneration and regeneration, and this stage may roughly be said to last from about eighteen months to two years, this is the period of time during which they are particularly indicated and at which their usefulness is at its height.

Having spoken of the limited usefulness of braces and supporting appliances, it is wise to mention that in the fashioning of a brace one must always bear in mind that its chief use is to preserve muscles, and that it may, if carelessly prescribed, by constricting the limb and preventing free circulation and function, condemn to

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greater deformity an already affected part. Thus braces should always be light, simple, readily removable, non-constricting, and should be often removed.

If the deformities arising from paralyses and pseudo-paralyses are not guarded against, probably in the first or second year following the attack of anterior poliomyelitis the patient will develop contractions, and, conversely, muscle-stretching. It is for these, primarily, that excisions of skin and muscle-shortening, such as are practised by Mr. Robert Jones of Liverpool, are indicated, and it is for these that tenotomies and tendon-lengthenings are necessary.

TENOTOMIES. It was only in 1831 that Strohmeier began to practise successfully the operation of subcutaneous tenotomy for the deformities resulting from contracted tendons. The methods advocated by him, whilst still in vogue, have, since the birth of the Listerian era, been supplanted in many instances by open operation.

TENDON LENGTHENING. Tenotomy of recent years has given way in a proportion of cases to tendon lengthening, and at present, due to the work of Langé of Munich, we do not hesitate to lengthen almost any tendon for any distance by means of long strands of paraffined silk, knowing that these will eventually become covered with fibrous tissue and that a new tendon will be produced.

These simple operative procedures have revolutionized the treatment of deformities resulting from anterior poliomyelitis. To-day there can be no reason for equinus and the many deformities resulting from contractures. All these can be relieved by tenotomies and tendon lengthening.

TENDON TRANSPLANTATION. The most interesting operative procedure advocated for the relief of the deformities resulting from anterior poliomyelitis is tendon transplantation. The first record of this method is that of Nicoladoni in 1882. He divided the peronei tendons and attached them to the tendo Achillis in order to remedy calcaneus. Since then many operations on many muscles have been performed. The transplantation of tendon into tendon has been proved to be more or less unsatisfactory, transplantation into periosteum or bone being now the procedure chosen.

Most satisfactory results follow tendon transplantation if the operation is performed after sufficient deliberation. In general, a period of at least two years should intervene between the onset of the paralysis and the operation. One should not expect the impossible. At first, transplantation of extensors into flexors, and vice versa, was expected to be followed by brilliant results. The

nerve cells governing a flexor were expected to change their function and instantly to produce extension at the will of the operating surgeon. How absurd! What, then, can we expect?

To my mind, the aim of tendon transplantation should be the conversion of a power for positive evil into a power for negative good. To explain; whilst we cannot expect an extensor instantly to take the place of a paralysed flexor, yet the functioning extensor, while unopposed by the paralysed flexor, must be a deforming influence—a power for positive harm. Let us, then, by transplantation convert this deforming extensor into the position of a flexor. It will cease to be a deforming influence, an influence for positive harm, and although it cannot be expected to at once perform the work of the flexor—a function which is diametrically opposed to that for which it was created—yet it possesses that quality known as muscular tone, and that tone will aid in supporting an unsupported part. It was a power for positive harm, it is a power for negative good.

One of the transplantations most frequently performed in the hospitals with which I am associated, is that for claw toe and, less frequently, that for claw foot. Here the long extensor and the long flexor, being insufficiently opposed, have produced hyper-extension and dorsal subluxation of the toe on to the head of the metatarsal bone. This subluxation causes a forced depression of the head of the metatarsal, and a very painful condition simulating anterior metatarsalgia results. By transplantation of the long extensor of the phalynx into the head of the metatarsal bone, this head is necessarily raised, and the toe not only ceases to depress it by virtue of its dorsal position but sinks downwards into a normal position where it is maintained by the short extensor.

ARTHRODESIS AND ASTRAGALECTOMY. The operations of arthrodesis and astragalectomy are available for joints which are flail-like. Here stability is required, and ankylosis in a good position will do, and do well, what a brace was once expected to do. Now, I speak of these operations as supplanting the use of a brace, but I speak generally. For instance, it is questionable whether an ankylosed knee is to be preferred to a flail-like knee well controlled by a brace, but unquestionably an ankylosed ankle is to be preferred to a badly controlled foot.

NERVE TRANSPLANTATION. From a theoretical point of view, the most interesting operative procedure for the relief of the deformities resulting from anterior poliomyelitis is that of nerve transplantation, but, although this procedure has enthusiastic

advocates, it is questionable whether we are justified in submitting our patient to the possibility of injuring a delicate yet functioning nerve by transplanting a functionless nerve into it. Time, however, will possibly so improve our technic that this procedure will be more commonly employed than at present.

In closing these remarks I would say that whilst surgical procedures are not yet all sufficient to relieve the deformities resulting from anterior poliomyelitis, great advances have been made towards doing this, and our natural dread of so-called infantile paralysis is yearly becoming less.

"So far as our present knowledge is concerned, with the small quantities that we have at our command, radium can only be relied upon, and that to a limited extent, in cases of malignant disease in which growth is slow and the degree of malignancy relatively slight. On the other hand, it is of the greatest value in what may be called the pre-malignant stage—that is to say, in removing growths which not infrequently become malignant as age advances, without an operation and, what is very important, not merely for cosmetic but for clinical reasons, without leaving much of a scar; and there is good reason to hope that if the small quantities we possess now are capable of dealing with growths of relatively mild malignancy, larger amounts, when we can get them, will prove equally successful in circumstances of greater difficulty."
—*The Lancet*.

"CERTAIN tests have been proposed to distinguish physiological from pathological albuminuria. In a number of cases it has been found that the albumin disappears from the urine after one or two doses of calcium lactate. In a discussion which took place at the Life Assurance Medical Officers' Association in 1906, Dr. R. Hingston Fox recorded his experience in this matter, and cited several cases which fully satisfied him as to the effect of the calcium salt in controlling the transudation of albumin. The presence of casts in the urine may yield evidence which is of value in the differential diagnosis. If numerous granular and epithelial casts are found, then nephritis is undoubtedly present, but if only hyaline casts are seen, then the albumin may be of a functional character; the absence of casts, however, does not exclude disease of the kidney, as these bodies are not always present in such conditions."—*The Lancet*.

PROSTATECTOMY: THE SUPRAPUBIC ROUTE

By W. J. MACDONALD, M.D., ST. CATHARINES

ONE of the most dismal pictures to which the man with chronic prostatic hypertrophy may look forward, is that which is generally known as "catheter life." When one or both lobes of the prostate attain such a size as to preclude the possibility of voiding all the urine in the natural manner, life becomes miserable indeed. The daily introduction of the catheter to evacuate the bladder of the residual urine, soon begins to sow the seeds of future discomfort and misery in the form of cystitis, ascending pyelitis, etc. The young are fortunately exempt, for it is seldom that the first symptoms of this disease appear under the age of fifty years.

Until within the last decade the treatment has been entirely medical, and this of course, could, even at the best, afford but temporary relief. Irrigations of the bladder, along with the various medicinal agents employed, could only for a time assuage the distress of the accompanying cystitis, and in every case the patient must ultimately bow to the inevitable. Surgery, however, has today come to the relief of this condition, and where formerly no hope of recovery could be entertained, he may now look forward with the utmost confidence to a complete and permanent cure.

HISTORY. In the *London Lancet* of February 4th, 1888, McGill first brought prominently before the profession his operation for the removal of any obstruction to the free flow of urine, due to any enlargement of the prostatic gland. This consisted mainly in opening the bladder suprapubically and removing any portion or portions of hypertrophied glandular tissue which might be projecting into the viscus. This article was well received, and for a time the operation was practised extensively; but in those early days the mortality was exceedingly high, and this, combined with only transient relief, soon caused the operation to fall into disrepute, and for a time it became practically obsolete. The cause of these early failures is to be found in the fact that at best only a small portion of the obstructing gland was removed (that projecting into the bladder), whereas it has now been demonstrated beyond all question that only after complete and entire enucleation of the enlarged lobe, or lobes, as the case may be, will there be a radical

and permanent cure. The failure of McGill's operation caused Van Dittel in 1890 to suggest and practise an incision through the perineum. By this method he dissected the rectum free from the prostate, and then removed a wedge-shaped portion from each lobe, thus relieving the pressure on the urethra. His procedure also speedily fell into disuse, owing to the incomplete relief obtained and the presence of a permanent fistula in nearly all his cases. Nicoll next conceived the idea of combining these two operations. After making the perineal opening and dissecting the rectum free from the prostate, he performed suprapubic cystotomy with the idea of introducing the fingers into the bladder and pushing the prostate well down into the perineal wound, thus enabling the operator to remove a much larger portion of the offending organ than he otherwise could accomplish. To Goodfellow, however, belongs the credit of being the first surgeon to advise the passage of a sound, and then make a perineal median incision directly onto it through the prostatic urethra. This incision he carried downward to the neck of the bladder, as in an ordinary perineal cystotomy. He discarded the suprapubic opening altogether. Through the wound thus made he inserted his finger and shelled the prostate out of its sheath. This of course necessitated the destruction of both the prostatic urethra and ejaculatory ducts.

The first practical and scientific advocacy of the perineal route was described in the October issue of the *Presse Médicale* in 1901 by Proust of Paris, and during the four or five succeeding years was extensively practised, especially by American surgeons. In this operation a special retractor is used for the purpose of bringing, or rather pushing, forward the prostate into the wound, thus greatly simplifying the operation. This instrument is L shaped, with its respective arms about six and two inches in length. At the end of the short arm are two small, reversible flanges. After the prostatic urethra has been opened and the staff withdrawn, the short arm of this instrument is introduced through the opening in the urethra, the arms opened and fixed, and then by exerting pressure downwards the prostate is brought more fully into view. No attempt whatever is made to save the ejaculatory ducts, though the damage to the urethra may not be so very great.

In Young's modification of this operation, he introduces his retractor, a perfectly straight instrument with folding arms at one end, in the same manner, through the same opening in the urethra, and after opening the arms behind the lobes, pulls the gland directly forward within easy reach. He also makes a definite attempt to

save the ejaculatory ducts by making an incision on either side of the median line of the prostate for the full length of the organ, thus leaving behind a central bridge of glandular tissue containing the ducts. In this manner he claims to leave the ducts and urethra intact. So much for the evolution of the perineal route.

On December 1st, 1900, Freyer, of London, performed his first total enucleation of the enlarged prostate through a suprapubic opening, and on July 20th following, described his method in detail in the *British Medical Journal*, reporting four successful cases. For reasons which I shall presently give, when I describe the operation in detail, this suprapubic prostatectomy is the one of my choice, and, with few variations, the technic, as described in that article, is the technic which I usually follow.

SYMPTOMS. A prostate may, under certain conditions, attain a very considerable size before producing any symptoms whatsoever. The symptoms are also materially modified by the nature and position of the growth. Occasionally the frequent calls to urinate pass entirely unheeded by the patient until some such exciting cause as exposure to cold causes a temporary complete retention. After catheterization, a bimanual examination at this time may, and frequently does, reveal a very much enlarged prostate.

One of the first indications of prostatic enlargement is the occasional inability to commence the act of micturition at once, a few moments elapsing before a free flow of urine is established. Straining hinders rather than assists the act. Any enlargement of the prostate narrows the lumen of the prostatic urethra, therefore the stream must necessarily be projected with less force. As the gland increases in size, the symptoms become more marked. A sense of pain and weight and fulness is experienced in the perineum, the bladder becomes more irritable, and the act of micturition is frequently resorted to in an effort to obtain relief. By this time the patient notices that he is rising twice or more each night to evacuate the bladder, and his physician is consulted in an endeavour to obtain relief from the increasing irritability.

As the enlargement increases, a greater strain is continually thrown on the vesical muscles in their endeavour to empty completely the bladder, and they in turn gradually lose their expulsive power, becoming more and more atonic. As a result, after each act of micturition, there is more or less residual urine remaining in the bladder. The amount of residual urine does not necessarily depend on the size of the prostate, but rather on the position of the hypertrophied portion. I have removed, with the most satis-

factory ultimate results, the left lobe of the gland, weighing a fraction less than half an ounce, which caused the retention of eight ounces of urine after each act of micturition.

This patient, Mr. Martin B., was admitted to the hospital on October 9th, 1910, in a very much weakened condition. On several occasions catheterization immediately after urination showed eight ounces of residual urine, though bimanual examination per rectum revealed but a very small hardened mass in the region of the prostate. As his general condition was very bad, he was put to bed and the bladder emptied and irrigated with saturated boracic acid solution every eight hours. This, combined with urinary antiseptics in the form of urotropin and citrate of potash, wrought a great change in his general condition in a month. In six weeks his systemic symptoms had disappeared, but there was absolutely no decrease in the amount of residual urine. Catheterization at this time showed just as much as on admission. I advised operation, as the only hope of preventing his return to the former condition, and he accepted. Suprapubic prostatectomy was performed on November 25th. The right prostatic lobe was found to be absolutely normal, but the left, only slightly enlarged, was projecting into the bladder in such a manner as almost to occlude the urethral opening. Its removal was followed by speedy and complete relief.

The quantity of urine thus remaining may gradually increase to such an extent as to become almost retention, that voided being practically an overflow. In this condition there is a constant dribbling to a greater or less degree, wetting the clothes by day and the bedclothes by night. The residual urine rapidly becomes alkaline, and a chronic cystitis exists. The general health is slowly undermined, hydronephrosis frequently occurs, and, in many instances, as a result of the retention in the blood of toxic materials which should have been eliminated by the kidneys, uræmia sets in.

DIAGNOSIS. When a patient, past middle life, complaining of any of the symptoms just described, presents himself for treatment, a suspicion of prostatic hypertrophy is at once entertained. If, after a careful examination, this suspicion is verified, the question of greatest moment to determine is, whether or not operation will offer prospects of permanent relief. The minute history of the case should be carefully taken, as this in itself will afford a very material help in the diagnosis. The main facts indicating that the seat of obstruction lies in the prostate are: the patient's age—anywhere above fifty—irritability of the bladder, constant and increasing,

though, as a rule, more pronounced at night, the fact that straining hinders rather than helps the act of micturition, and, finally, evidences of distention of the bladder.

To determine the approximate size of the organ, and also the possibility of being able to effect its enucleation in its entirety, it is well to have the patient empty the bladder as much as possible in the natural manner, then introduce a catheter and draw off all the residual urine. With the bladder thus emptied, and the patient in the recumbent position, the forefinger of the right hand is passed into the rectum, being careful to dilate well the sphincter in order to allow a free exploration. The prostate is next carefully palpated to determine its apparent size, its contour, whether smooth or bulging, or roughened and nodular, and finally, and most important of all, its movability. If it is found to be freely, or even only slightly, movable, in all probability it is a case where complete enucleation can be accomplished. If, in addition to this, on bimanual examination it is found that the organ may be distinctly felt and slightly moved between the finger in the rectum and the fingers of the left hand pressing down behind the pubes, the case is certainly one offering excellent prospects for entire enucleation.

The cases presenting the greatest difficulty in deciding whether or not the organ can be enucleated in its entirety, are not those with the greatest hypertrophy, but rather the small overgrowth—usually an adenoma. These latter may be the cause of almost complete retention, though presenting very little bulging into the rectum. In these instances the cystoscope will show the amount of overgrowth projecting into the bladder. If this reveals a marked prominence of one or both lobes, operation may be undertaken with the utmost confidence of complete success. It sometimes occurs that a man may be troubled for many years with slight prostatic hypertrophy, though not enough to cause any serious inconvenience, and only in extreme old age have the symptoms become acute. Such a case is the following.

On January 20th, 1911, I was asked to see Mr. John T., an old man of eighty-six. For the previous ten years he had had to rise once or twice each night, though at no time did he consider himself ill and had never consulted a physician for this trouble. When I saw him his legs were markedly cedematous to the knees, and stethoscopic examination revealed a mitral regurgitation. His arteries were also very hard. He complained of constant and severe irritability of the bladder, having to rise five or six times every night, only to obtain at the most but meagre relief. After

voiding urine, catheterization showed but four ounces of residual urine. Bimanual examination revealed an enormously enlarged prostate. On account of his extreme old age and general debility, I advised simply making him as comfortable as possible by bladder irrigations, etc., while life should last.

For some weeks this expectant treatment was faithfully carried out, his general condition improved, and the urine became less foul, though the intense irritability showed no signs of abating. On February 19th he strongly pleaded for operation, knowing full well the risks he was taking, but feeling that any risk was preferable to his constant suffering. On February 21st, I performed suprapubic prostatectomy, removing two enormous lobes through a greatly contracted bladder. But a very small amount of anæsthetic was administered, and the operation consumed as little time as possible—just twenty-one minutes. With the aid of hypodermic injections of adrenalin and camphorated oil he stood the shock admirably and rallied well. On the third day the tube was removed; on the eighth he was sitting in a rocking chair; and on the twentieth returned home from the hospital completely well as far as the bladder was concerned, but with that frailty one would expect to find associated with his years.

PREPARATORY TREATMENT. The general health of patients seeking relief from prostatic trouble of this nature is, as a rule, more or less undermined. The bladder is septic, the urine is foul, and consequently, if possible, it is well to have them in hospital for a few days prior to operation. The diet should be plain and nourishing, and the bowels kept regular. The greatest attention, however, is directed to the bladder. It must be got into as aseptic a condition as possible before operation. For this purpose urotropin in ten grain doses is administered every four hours. Citrate of potash in twenty grain doses will also be found exceedingly beneficial. Every eight hours the urine is drawn off per catheter, and the bladder is irrigated with a saturated solution of boric acid. This will rapidly cleanse the infected viscus, and render the field of operation as aseptic as we may hope to get it.

The operation which I have found to give the best permanent results, and the one which, with a few modifications, I am in the habit of performing, is, in the main, that devised and advised by P. J. Freyer, surgeon to St. Peter's Hospital for stone and other urinary diseases, London, England. It is a suprapubic operation. I favour the suprapubic rather than the perineal route, because a complete enucleation, if done early, means a complete cure. The

power of retaining and voiding urine in the natural manner is restored. The wound speedily granulates, leaving no urinary fistula. There is no return of the symptoms, and, furthermore, since the ejaculatory ducts are left intact, there is no diminution of sexual power. This latter is indeed a very strong reason in favour of this route, because so many cases presenting themselves are not far beyond the age of fifty.

Can so much be said for the perineal route? I think not. In the first place, perineal prostatectomy is not a total enucleation, but merely a partial extirpation of each lobe. If total enucleation is accomplished, it must only be at the expense of the ejaculatory ducts, a very serious drawback indeed. If the ducts are left intact, it can be only after leaving a portion of each lobe, a condition to be avoided, if at all possible, for many reasons. Primarily, the presence of any remaining glandular tissue favours the return of the former symptoms. In at least some cases where a portion of the gland is left to protect the ejaculatory ducts, even this portion may cause enough compression on the urethra to prevent the bladder completely emptying itself, hence we have the first retrogressive step towards old conditions—residual urine. This, of course, occurs in only a small percentage of cases, but it does occur.

The most serious drawback and gravest danger in leaving behind any portion of prostatic tissue, is that it is conducive to the ultimate development of cancer. That this is a very real danger indeed we know, because in a large percentage of cases of prostatic cancer, the malignancy is grafted onto an adenomatously enlarged organ. Some observers calculate the percentage of adenomata of the prostate degenerating into cancer as high as ten per cent., and some even higher. Now, are we not as likely to have just as high a percentage of malignancy develop from a portion of the gland left behind, as from the entire organ? By the perineal route the operator must decide this question: Shall I enucleate the gland in its entirety and thus destroy sexual power, or shall I leave that portion protecting the ejaculatory ducts, thereby leaving a condition which in at least one case in ten, will, as life advances, degenerate into malignancy? Finally, by the perineal route it is a common thing for a temporary urinary fistula to remain, and in several instances I have known this condition to remain permanently.

OPERATION. The pubes and field of operation having been shaved and aseptically prepared, and the lower bowel cleansed by an enema, the patient is anesthetized and placed in the Trendelen-

burg position, the operator standing on the patient's left. The bladder is now thoroughly irrigated with a saturated boric lotion, and left fully distended, the catheter remaining in position and a pair of clamp forceps compressing it externally to prevent the escape of the fluid. An abdominal incision is now made commencing at the pubes and extending upward two and a half inches. This incision is carried through the abdominal wall separating the rectus muscles and through the space of Retzius until the bulging bladder is revealed. Care must now be taken to arrest all bleeding, and have the wound quite dry before opening the bladder. The scalpel is then plunged through the bulging bladder wall, and the contained lotion speedily wells out over the abdomen. In order to prevent bleeding, the opening in the viscus is enlarged with the fingers for the space of about one inch to one inch and a quarter, though frequently during the subsequent manipulations this opening may become much larger.

The forefinger of the right hand is now carried downward into the bladder, and that of the left hand into the rectum, and between the two may be distinctly palpated the diseased and enlarged prostate, the finger of the left hand pushing it well up into the bladder and within easy reach. Which is the most advantageous point to commence enucleation?

The prostate in its normal condition is composed of two lobes situated laterally on either side of the urethra. Each lobe is enveloped in its own sheath or true capsule. These capsules are united in front of and behind the urethra, by bridges of tissue, thus forming the anterior and posterior commissures. Along the posterior commissure, and at its upper extremity, the ejaculatory ducts pass, one lying on either side, close to the inner border of the capsule, but not penetrating it until they empty into the urethra. Each lobe, moreover, has its own gland ducts emptying into the urethra, so that it will readily be seen that the two parts of the prostate are entirely separate and distinct from each other. Over the entire organ as thus constituted is another covering or capsule enveloping both lobes, and composed mainly of rectovesical fascia. Thus we have two separate organs, each embedded in its own capsule, and the whole encased in a separate sheath or outer capsule. In this present operation this outer capsule is left, the inner lobes alone with their enveloping sheaths being shelled out. In the normal prostate there is no middle lobe, the so-called middle lobe being but an overgrowth from one or other, or both, of the lateral lobes. In the hypertrophied organ one or both lobes

bulge to a considerable extent into the bladder, and it is at the most prominent part of this presenting portion that the enucleation will commence.

With the left forefinger in the rectum, pressing the prostate into the bladder as far as possible, the outer sheath is scored through with the finger nail in the bladder; the fingernail should always be used rather than a scalpel or pair of scissors, as either of the latter are apt to cut through both capsules, thus destroying the line of cleavage, and making possible but a partial enucleation at best. The finger is now gently insinuated between the inner and outer sheaths; stripping downwards and backwards, it then sweeps around latterly to the front, stripping the lobe out of its shell as it were. During this process the two lobes usually become separated along the anterior commissure. While shelling out the lobe the urethra is readily detected by the presence of the catheter, and great care must be exercised to prevent its tearing. The ejaculatory ducts lying close to the capsule are left intact, the finger stripping the gland away up to the point where they enter the urethra. The finger is now carried well down behind the inferior surface, and the gland stripped from the triangular ligament. The lobe is now lying entirely free in its outer sheath, except for its lateral attachment to the urethra. This in turn is separated by gently stripping, and the lobe is free, and extracted through the opening in the bladder by a pair of forceps. The other lobe is next similarly dealt with.

If, as frequently happens, the two lobes are so densely adherent along the posterior commissure as to be inseparable, the whole organ will have to be enucleated at once. In this case, after stripping it free on all sides, after stripping it off the triangular ligament below, and after separating it from the ejaculatory ducts, it will be found to be hanging free on the urethra. With the assistance of the finger in the rectum the whole organ is now turned forward into the bladder, and an attempt made to separate it from the urethra. If this is safely accomplished, well and good, though more often it will be found that the vesical end of the urethra has been torn across in the endeavour, but always at a point behind the entrance of the ejaculatory ducts. There is, moreover, the satisfaction of knowing that this damage to the urethra in this location can result in no harm whatever.

The prostate having now been removed, the toilet of the wound is begun. Through the catheter, which has been left in the urethra throughout, the bladder is flushed with a hot, saturated

solution of boric acid, the washings coming away through the upper wound. This process is continued until all clots and débris are removed and the solution wells up quite clear. A large, red India rubber drainage tube, red because it is usually softer and more pliable, thus producing less irritation, is now introduced into the bladder at the lowest angle of the wound. As it is very essential that all the urine should pass through this tube, in order that none may well up into the prevesical space and thus start cellulitis, it is very necessary that the tube should be of large calibre. I now invariably use one four inches in length and one inch in diameter, with a lumen of three-quarters of an inch. This allows the wound to grip it tightly, and prevent the escape of any urine around it.

Two large eyes should be cut in the tube on opposite sides and close to the vesical end, and these introduced just inside the viscus. Under no circumstances should the tube be carried down to the prostatic cavity, as that must be kept free from irritation. As a rule, one inch of tubing inside the bladder will suffice. Buried sutures are never used, as they invariably become infected by the urine and cause cellulitis. A couple of deep, silk-worm gut sutures will now bring the wound together, and a thin strip of gauze may be carried down beside the tube to the prevesical space, and left in position for twenty-four hours. It is well to pass one superficial suture through the skin and tube to keep it in position. The bladder is now once again flushed out with boracic lotion to see that it is free from blood clot and that drainage is free, after which the catheter is removed, the wound covered with a moist gauze dressing, and the abdomen and sides deeply swathed in absorbent cotton.

AFTER TREATMENT. Of almost equal importance to the skilful performance of the operation is the care and after-management of the patient. Since all the urine will be absorbed by the dressings, it will be necessary to have these changed as often as they become saturated, certainly every four or five hours during the first few days. For the first two days the patient is not allowed to make the slightest exertion for fear of producing hæmorrhage in the prostatic sheath. After this time, however, he is propped up in bed to prevent hypostasis, a complication which may be expected in men of this age. On the seventh or eighth day the stitches are removed and the patient allowed to sit up in a rocking-chair for a short time, while after this he is up for a longer period each day.

Concerning the management of the drainage tube, which is of the utmost importance, it is well to remember that it is of large

diameter to facilitate the drainage of all the urine through it, that the abdominal wall may grip it tightly to prevent infection of the prevesical space, and that all blood clot and débris may be readily flushed out through it at all subsequent irrigations. The most satisfactory method is to irrigate gently through the drainage tube with a glass nozzle attached to a fountain syringe for the first four or five days while the tube is in position, then after its removal to alternate this daily by irrigation through a catheter in the urethra. A catheter, however, should in no case be passed for the first three or four days for fear of causing hæmorrhage. These irrigations should be continued at least once daily, and if the urine be at all foul, twice daily, until the suprapubic opening is closed. A saturated solution of boric acid is the best lotion.

After the first four or five days enough lymph will be present around the tube to protect the prevesical space from infection, and it may be safely removed. For a time it was my practice on the removal of the large tube to insert a smaller one for a few days, but latterly I have discontinued this as unnecessary. The wound is now left perfectly open, simply covered with dressing to absorb the urine, and allowed to granulate as speedily as nature will permit.

"PATCHES of alopecia areata on the scalp are also extremely profitably treated with hyperæmia. In most cases the patch of alopecia areata is very anæmic, because of deficient blood supply. The blood supply needs to be encouraged, and that has been done formerly by putting on cantharides and other strong stimulating lotions. But the suction cups do all that, and far better. Take a cup of the size of the bald patch, and leave it on for a few seconds. Almost immediately on applying it, the area becomes cyanosed, and there is increased circulation in it. The patch which was blanched and white, pale and shiny, almost immediately becomes more normal in appearance; and after a few days these bald, pale patches are no longer pale, but there is now plenty of blood in them. They are always passively congested, and unless there is previous destruction of the hair papillæ, which is incurable, the hair will begin to grow. Bald patches are sometimes found also on the eyebrows, and this method can be applied by putting on hyperæmia cups; and after a time the hair will be seen to be growing."

—*The Practitioner.*

Case Reports

COMPLETE INVERSION OF THE UTERUS RELIEVED BY ABDOMINAL OPERATION

THE following case is somewhat unusual in character, and the condition present demanded operative interference for its treatment. The operation was carried out under conditions which were not very favourable for surgical work, and the procedure adopted was simply that which appeared to offer the best prospect for radical relief. The author is not aware if similar methods have hitherto been used for inverted uterus, and as the operation was completely successful it was thought worth while to place it on record.

The history of the case is as follows: The patient, Mrs. B. aged twenty-six, a primipara, was seen by the writer in consultation on February 9th, 1911. She had been confined on September 12th, 1910, and in labour over fifty hours. Towards the termination of the labour she had been up and about the room, and during delivery she was resting on her hands and knees on the floor. The placenta was delivered half an hour subsequently, considerable traction having been made on the cord by the attending midwife. After confinement there was a constant loss of blood from the vagina, but there was no bladder or rectal irritability. Extract of ergot had been given freely by the attending physician without any appreciable improvement.

On examination the facies were pale and pinched. The pulse was 132 per minute and the temperature $98^{\circ}3'$. The abdominal wall was unusually lax. There existed a slight, dark, bloody discharge from the vagina with very little odour. There was a mass present just inside the vaginal outlet. In appearance this was deeply congested and apparently of low vitality, but no actual sloughing or gangrene had occurred. It was pyriform in shape and elastic in consistence, giving the impression of a pedunculated fibroid. Bearing in mind the possibility of an inverted fundus, the openings of the Fallopian tubes were searched for, but without success. Further examination failed to reveal any cervix in the vagina. No opening was found through which the uterine sound could be passed. Conjoined abdominal and vaginal examination revealed no mass in the abdomen where the fundus normally should have been.

The diagnosis made was that of complete inversion of the uterus. As the patient was anæsthetized at the time of the examination an attempt was made to replace the uterus. Considerable pressure was exerted on the fundus with the hand in the vagina, and counter pressure with the other hand was made above the symphysis pubis, hot douches being used whilst the attempt at reduction was being made. No degree of success was obtained. As the patient was not in a condition for further manipulation the following course was advised: absolute rest in bed with tonic treatment and daily vaginal douches of normal saline. This was continued for sixteen days, when general improvement seemed to warrant further measures for relief. Operation was carried out on February 27th, with the assistance of Dr. Roberts. At that time the pulse was 90 and the temperature 98.2°.

All preparations having been made for operative procedure, the patient was anæsthetized and an attempt was again made, while in the lithotomy position, to replace the uterus by vaginal manipulation. It proved absolutely impossible to obtain any measure of success. The patient was placed in the Trendelenberg position and a median incision was made above the symphysis pubis. Instead of finding the corpus uteri and appendages in their normal positions, there was found a small ring through which the tubes were drawn, with the ovaries lying on the margin of the ring. This ring was firm, almost of fibrous consistence, admitting only the point of one finger. An attempt was made to dilate it using the fingers only. But so rigid was the ring and so lax were the surrounding parts that very little success was met with. One hand was now inserted into the vagina and by means of this counter pressure some further dilatation was obtained. But after more than an hour's effort, after which only two fingers could with difficulty be inserted, it became clearly evident that sufficient dilatation could not be secured in this way to replace the fundus uteri. An incision was now made one and one-half inches long in the anterior part of the rigid ring extending through into the vaginal cavity. This made readjustment of the parts comparatively easy. The uterine incision was closed with three layers of sterile catgut, No. 2, and the abdominal wound was closed in the usual manner.

The subsequent history is that she made an excellent recovery. A very small amount of discharge continued for a few days only; a douche was given on the third day and continued daily for one week. Normal menstruation commenced on the fourth week after the operation. Vaginal examination on March 25th showed a

normal position of uterus. The patient was seen four months later when menstruation was perfectly normal and her health excellent. The outstanding features of this case seemed to be:

(1) The lack of any gross symptoms, the only trouble being the persistent discharge and the excessive weakness.

(2) The inability to locate the openings of the Fallopian tubes by vaginal examination.

(3) The extreme rigidity of the ring, through which the inverted uterus had prolapsed.

(4) The almost immediate cessation of discharge after the condition was rectified.

(5) The rapid recovery of tone in the affected parts and the complete restoration of normal function.

D. G. JAMIESON.

Wesleyville, Newfoundland.

"CONSIDER for a moment the aims of dietetic treatment in diabetes. By its means we are able, in many cases, to decrease materially, or even to arrest completely the output of glucose, and this because we are able to diminish or to remove the excess of sugar in the blood. The loss of the potential energy of the unburnt sugar can be readily compensated by dietetic means, but the hyperglycemia is the cause of many of the troubles to which diabetic patients are liable. Again, by resting the damaged mechanism as far as may be, we not only arrest the aggravation of the error, but even bring about, in no small proportion of cases, a remarkable recovery of tolerance for carbohydrates—a matter of no small importance. Some diabetics are able, after a course of rigid dieting, to deal with much larger quantities of starch than would have sufficed to excite glycosuria before such treatment. Whereas, when starch food is allowed without restriction, a progressive aggravation of the metabolic error results, often very rapidly."

—*The British Medical Journal*.

Editorial

THE PROPRIETARY SCHOOL

THE last vestige of the proprietary school of medicine has passed away from Canada, and medical education is now wholly in the hands of the universities. The change has been forced by the inexorable march of science these forty years past. In the outset all schools of medicine were in reality, if not in obvious appearance, proprietary schools. One was an adjunct to a hospital; another arose out of rivalry; and more had their origin in personal ambition or in professional strife.

It was easy in those days to open a medical school. All that was required was a few bodies for a perfunctory dissection, and a lecture room in which the professor could recite an elaborate epitome of his text-book, or relate the experiences which he encountered upon his daily rounds. If a microscope or two were added, then the equipment was complete. Access to a hospital was a manœuvre to bewilder a rival rather than an integral part of the course. It was easy, also, to obtain a faculty at a time when the armamentarium of a surgeon was a knife and a piece of string, and his mental equipment a resolution to let blood; when the main qualification of a professor was a sure facility in speech and a certain capacity to entertain.

Students, too, were not hard to come by. The man who was tired of being a tailor, who found irksome the laborious monotony of the farm, or the man who would improve his social and financial status in the world,—all these were eager to avail themselves of the services of an institution which was willing to minister to their ambition on such easy terms. Even the length of the session was made as short as possible,

so that needy students might return to their legitimate and gainful employments with the least delay. An increased number of students meant increased revenue for the school. Bigness brought notoriety and then became a pretext for appealing to the charity of the public, as a man might appeal for support on the ground that he had had an addition to his family.

But all this is changed. There is no longer any profit in running a medical school. The meanest equipment which will suffice for modern needs is more expensive than the installation of other factories from which greater returns can be realized. The average cost of producing a physician in Canada is double the amount of the fees which he pays as a student during his whole course. The medical student now is a burden rather than an asset. The university does not want him *qua* student. It only wants him if he comes in conformity with the university ideal, which is the preservation and advancement of learning. Accordingly, medical schools are now in the habit of boasting that their registration is falling off, the inference being that a heightened standard of entrance and graduation is producing its laudable result. The problem, however, is not so simple as that, because experience has shown that increased standards in the end prove themselves to be the most powerful attraction of students.

In conclusion, the statement, that the last vestige of the proprietary school has disappeared from Canada, must be qualified by the reservation that proprietorship is a term susceptible of various meanings. Long after the schools had ceased to be of any pecuniary advantage to the proprietors, they remained a fruitful source of prestige and a means of advancement in the profession. Appointments then came to be made, not so much in the interest of education as with the intention of furthering, or at least not interfering with, the interests of those who were already in control. A faculty is, of course, in one sense a family; but family interest, if pushed too far, may interfere with the general good. In some schools this system had reached a state of vicious perfection.

The university, being a larger body and, correspondingly, less amenable to personal control and local considerations, is able to look at a proposal for appointment in a more judicial and abstract way, and the faculty is relieved from a duty which the most disinterested have long since found it difficult to discharge. To trace the steps by which the schools have passed under the control of the universities would be to write the history of medical education in Canada. The more effectively the universities support their new responsibility, the sooner will those evils pass away, which were inherent in a proprietary system in which proprietorship meant pecuniary gain, the gratification of personal predilections, or the advancement of private ambition.

TORONTO ACADEMY OF MEDICINE

ON October 9th the first meeting of the Medical Section of the Toronto Academy was held. Dr. Graham Chambers referred to the desirability of making meetings as clinical as possible, of including reports of cases and short papers on observations in practice, and of avoiding long papers on stereotyped subjects. He suggested, also, that the social feature play an important part in connexion with meetings and mooted the question of an annual dinner.

Dr. Goldwin Howland presented a report of a case of general paresis in a child. Symptoms had been progressing from the age of four until the present time, when the patient is fourteen years of age. The discussion was lead by Dr. Harold Parsons.

Dr. McPhedran reported a case of cervical rib. The salient symptoms were pain and fulness in the supra-clavicular region of the affected side. The diagnosis was confirmed by a skiagraph. The patient was nineteen years old. In the discussion that followed, Dr. George Wilson quoted Dr. Keith,

curator of the Hunterian museum, as stating the condition to be extremely rare in patients under thirty-five years of age. Other members cited similar cases.

Dr. H. B. Anderson presented a case of syphilitic infection with no primary sore. The patient, a physician, scratched his finger while excising some venereal warts. Secondary symptoms appeared rapidly and were most virulent. The glandular involvement was unusual; the Wassermann reaction strongly positive. Mercurial treatment was instituted and continued for six months, but with little result. "Salvarsan" was then given, and in a week every symptom had disappeared. The Wassermann reaction was negative one year later, and there has been no recurrence of symptoms. During subsequent discussion of this case Dr. Clarkson spoke of a case of primary chancre on the lip. Within two months of seeing this case the patient's mother and his fiancée also consulted him. Both had primary sores of the lip.

Dr. Anderson also reported a case of recurrent hæmoptysis. The case had been most intractable. Physical examination showed absolutely nothing. The tuberculin reaction was negative. The cause of the symptoms was not discovered, and two months after his first consultation a more severe hæmorrhage than usual occasioned the patient's death. A partial post mortem examination revealed a slight dilatation of the thoracic aorta and an adjacent adherent pleura. The bronchi were filled with blood. There was no trace of syphilis and the original cause of the condition was probably pleurisy.

CLINICAL CONGRESS OF SURGEONS

WE desire to call attention to the second annual meeting of the Clinical Congress of Surgeons of North America, which takes place at Philadelphia on November 7th to 16th. Although this congress has only met once before, and that in Chicago, it has already come to be one of the most important in the professional life of America. At least thirty surgeons

in Canada were in attendance last year, and this number is likely to be increased during the present meeting. We take the liberty of setting forth the main items on the programme which appear under the following headings; but, in addition, there will be clinics by the surgeons of Philadelphia in all the principal hospitals every day from 8 o'clock in the morning until late in the afternoon.

SURGERY OF THE UPPER ABDOMEN: 1. Surgical pathology of the stomach and duodenum, J. F. Binnie, Kansas City. Discussion opened by W. L. Rodman, Philadelphia. 2. Surgery of the liver and bile ducts, George Emerson Brewer, New York. Discussion opened by Robert G. LeConte, Philadelphia. 3. Surgery of the pancreas, Maurice H. Richardson, Boston. Discussion to be opened by John B. Deaver, Philadelphia.

President's Address: Coordination of undergraduate and postgraduate teaching of clinical surgery, Albert J. Ochsner, Chicago. The technic and remote results of blood-vessel anastomoses, Alexis Carrel, New York. Cancer of the stomach; its surgical cure, William J. Mayo, Rochester,

The technic and results of deep injections of alcohol for ticdouloureux, Hugh T. Patrick, Chicago. Discussion to be opened by F. X. Dercum, Philadelphia. Surgery of the pituitary body, Harvey Cushing, Baltimore. Operative treatment of experimental lesion of the spinal cord equivalent to the crush injury of fracture dislocation of the spinal column, Alfred Reginald Allen, Philadelphia. Discussion to be opened by Charles H. Frazier, Philadelphia.

Some observations on the thyroid gland and its diseases, Charles H. Mayo, Rochester. Discussion opened by Francis J. Shepherd, Montreal. The operative treatment of fractures, Joseph A. Blake, New York. Discussion to be opened by Edward Martin, Philadelphia. The significance of blood in the stools, J. M. T. Finney, Baltimore. Discussion to be opened by Maurice H. Richardson, Boston.

THE SURGERY OF CHILDHOOD. 1. Pyloric stenosis in infancy, its surgical treatment, Charles L. Scudder, Boston.

2. Some differences between the surgery of children and adults, Charles N. Dowd, New York. 3. A paper on orthopædic surgery, R. Tunstall Taylor, Baltimore.

Surgery of the tubes and ovaries, Edward Reynolds, Boston. The treatment of ectopic gestation, Edward B. Cragin, New York. The circulation of fibroid tumours, John A. Sampson, Albany.

The surgery of the sinuses and its relation to orbital complications, Joseph H. Bryan, Washington. The relation between otitic and intracranial diseases, Gorham Bacon, New York. The newer operations for glaucoma, John E. Weeks, New York.

The executive committee is composed of Albert J. Ochsner, president; John G. Clark, vice-president; Franklin H. Martin, general secretary, and Allen B. Kanavel, general treasurer.

AN election was held recently at the Montreal General Hospital to fill the important position of assistant surgeon to that institution, and we regretted to see that the appointment was made in the antiquated and pernicious way that has prevailed for years; namely, by the voice of the life-governors. The governors are several hundred philanthropic men, women, and children who have become governors by a money payment. The greater part of these hundreds know little and care less about the particular men upon whose names they are asked to vote; certainly it may be averred that four out of five of them vote on somebody's advice or request, rather than upon their own knowledge; the result is that there may arise at any time an election campaign that is publicly acrimonious, undignified, and characterized by the exhibition of literature and personalities. We do not offer any opinion or pass any judgement upon the choice recently made; the point is that it is not seemly, this scrambling for positions whose tenants should be appointed, after quiet consideration, by a few men who know the meaning of the position and the qualities most likely to adorn it.

Book Reviews

PRACTICAL CYSTOSCOPY. BY PAUL M. PILCHER, M.D., Consulting Surgeon to the Eastern Long Island Hospital. Philadelphia: W. B. Saunders & Co. Toronto: J. F. Hartz Co.

In this excellent book of 398 pages, with 233 illustrations, 29 in colours, the varieties and constructions of the instruments, their care and preparation, as well as the technic of their actual use in the diagnosis and treatment of diseases of the bladder, ureter, and kidneys, is set forth in a clear and concise manner. Separate chapters are devoted to the diagnosis of diseases of the bladder, kidneys, ureters, and prostate. The whole work is admirably written. The coloured illustrations are particularly good and the book is one worthy of high commendation.

ON DISEASES OF THE LUNGS AND PLEURÆ, INCLUDING TUBERCULOSIS AND MEDIASTINAL GROWTHS. By SIR R. D. POWELL, BART., K.C.V.O., and P. HORTON-SMITH HARTLEY, M.V., O.M.D. Fifth Edition, pages xxviii, 712, with 29 plates, 6 in colours. Price 21 shillings net. Publishers, H. K. Lewis, 136 Gower Street, London, W.C.

This book is so well known and has become so popular that it is not necessary to discuss it in detail. The authors have spent many years in thoroughly revising the production of the present fifth edition, and have succeeded in incorporating into this volume much important and new material. The book contains numerous references which are recorded at the end of each chapter. The illustrations and plates (29) are good.

After a discussion of some of the essential facts in the anatomy and function of the lungs, the writers take up a consideration of the examination of the chest and secretions. This is followed by the ætiology, anatomy, symptomatology, diagnosis, and treatment of the different diseases of the respiratory system. The authors next deal with pulmonary tuberculosis, to which they have devoted 265 pages. In the chapter on ætiology they believe that the main source of infection is from the inhalation of dried, sputum-infected dust. They also uphold Professor Karl Pearson's conclusions that "The diathesis of pulmonary tubercu-

losis is certainly inherited, and the intensity of inheritance is sensibly the same as that of every normal physical character yet investigated in man." Under "Diagnosis" the writers recommend the anti-formin method of Uhlenhuth and Xylander for sputum examinations. The value of cough during auscultation and the best method of producing it for determining if râles are present or absent, is overlooked, though there is no single factor of greater importance to the general practitioner in making his diagnosis than this one point. They prefer the use of the subcutaneous tuberculin test in appropriate cases, on account of the focal reaction it may produce. The book can be recommended to practitioners and students.

ONE HUNDRED SURGICAL PROBLEMS. The Experience of Daily Practice Dissected and Explained. By JAMES G. MUMFORD, M.D., Visiting Surgeon to the Massachusetts General Hospital. Pp. 354; illustrated; price, \$3.00. W. M. Leonard, 101 Tremont Street, Boston, 1911.

This is one of the admirable "Case History Series" published by W. M. Leonard. It presents one hundred cases, each selected as an illustration of important features in diagnosis and treatment. The histories are followed by a thorough discussion leading to diagnosis, treatment, and results. Certain groups, such as those of the Stomach and Duodenum, Graves' Disease, and Digestive Disorders are worthy of special mention. In the last named series are ten full-page x-ray plates, showing ptosis of the large intestine. The volume is well written, and the cases are discussed in a style that the reader will find bright and interesting.

A MANUAL OF CLINICAL DIAGNOSIS BY MEANS OF LABORATORY METHODS FOR STUDENTS, HOSPITAL PHYSICIANS AND PRACTITIONERS. By CHARLES E. SIMON, B.A., M.D., Professor of Clinical Pathology and Experimental Medicine at the College of Physicians and Surgeons, Baltimore, etc. Seventh edition. Enlarged and thoroughly revised. Illustrated with 168 engravings and 25 plates; pp. 778. Lea & Febiger, Philadelphia and New York, 1911.

With the seventh edition this well-known book has undergone material change. The author has felt that the time has come when our knowledge of the laboratory findings in the various diseases is sufficient to warrant the construction of corresponding laboratory pictures, in which the essential factors bearing on

diagnosis can be collected. Accordingly, he has revised his previous work, cut out all matter belonging to other branches of medical study and introduced in previous editions because of the newness of the theories and methods employed, and made of the book what it professes to be—a manual of clinical diagnosis by means of laboratory methods.

The work is now divided into two parts. Part I represents the technical portion, and Part II, which is altogether new, the clinical portion. The revision and re-arrangement is clearly an improvement, and the manual should be of great value to students and practitioners who wish a comprehensive and clearly expressed statement of present methods in laboratory diagnosis.

Books Received

CORRECTION: The price of Parkes & Kenwood's "Hygiene," as given in the August Number should read 12s. 6d. net and not 18s. 6d.

MANUAL OF THE DISEASES OF THE EYE. FOR STUDENTS AND GENERAL PRACTITIONERS. By CHARLES H. MAY, M.D., Chief of Clinic and Instructor in Ophthalmology, College of Physicians and Surgeons, Medical Department, Columbia University, N.Y. Seventh Edition. Revised, with 362 original illustrations, including 22 plates, with 62 coloured figures; pp. 407; price, \$2.00 net. New York: William Wood and Company, 1911.

ONE HUNDRED SURGICAL PROBLEMS. THE EXPERIENCES OF DAILY PRACTICE, DISSECTED AND EXPLAINED. By JAMES G. MUMFORD, M.D., visiting Surgeon to the Massachusetts General Hospital; pp. 354; illustrated; price, \$3.00. Boston: W. M. Leonard, publisher 1911.

A MANUAL OF CLINICAL DIAGNOSIS BY MEANS OF LABORATORY METHODS. FOR STUDENTS, HOSPITAL PHYSICIANS AND PRACTITIONERS. By CHARLES E. SIMON, B.A., M.D., Professor of Clinical Pathology and Experimental Medicine at the

College of Physicians and Surgeons, Maryland. Seventh edition, enlarged and thoroughly revised; illustrated with 168 engravings, and 25 plates; pp. 778. Lea & Febiger, Philadelphia and New York, 1911.

DISEASES OF THE STOMACH, WITH SPECIAL REFERENCE TO TREATMENT. By CHARLES D. AARON, Sc. D., M.D., Professor of Gastroenterology and Adjunct Professor of Dietetics in the Detroit College of Medicine, etc. Octavo, pp. 555, with 42 illustrations and 21 plates; cloth, \$4.75 net. Lea & Febiger, Philadelphia and New York, 1911.

"THE treatment of puerperal septicæmia by means of anti-streptococcic serum, from which so much was anticipated on its first introduction, must be held to have proved disappointing. A committee appointed by the American Gynæcological Society reported upon 352 cases treated with serum among which the mortality was about 20 per cent., while among the cases treated in other ways the death-rate only amounted to some 5 per cent. It is difficult to believe that this conclusion really represents the truth of the matter, since it is probable that only the worst cases and those which failed to respond to other measures were treated by serum, but it serves to show how hopeless it is to attempt to prove the value of therapeutic measures of this kind by statistics."

—*The Lancet*.

"PERHAPS the most promising, and certainly the most striking recent step in the treatment of cancer, was Hodenpyl's use in 1909 of cancerous ascitic fluid reinjected subcutaneously into the same or another patient. His apparently brilliant early successes with this method led to its sensational exploration and exaggeration by the daily press. Later realizations did not fulfill the expectations thus excited. Hodenpyl's untimely death in 1910 prevented his carrying out his own researches on the subject. In the hands of other observers, his early results have not been repeated."

—*Boston Medical and Surgical Journal*.

Retrospect of Surgery

THE gathering together of the profession in greater numbers from time to time, in association meetings, has done much towards creating a better *esprit de corps*. One of the circumstances that have made for a standardizing of operative technic has been the formation of small, clinical, surgical associations, which at various times throughout the year visit from one city to another. There is small reason why such visits should not become international.

There seems to be a growing feeling, the world over, that the most brilliant *operator* is not of necessity the greatest surgeon. After all, what is more brilliant than an accurate diagnosis with a full knowledge of the pathological condition? Diagnostic methods have improved and will continue to improve; the purely exploratory operation will, ere long, have become a thing of the past.

Now that it is possible to make an earlier diagnosis in typhoid perforation, the results after operation are improving. There is still great room for improvement, as also in the results of operations for intestinal obstruction and for strangulated hernia.

The statistics of the mortality of appendicitis during the past ten or fifteen years is one of the most striking things in modern surgery. Where there was, ten years ago, a mortality of 8 per cent. in operations done within the first forty-eight hours, on a comparatively small number of cases, the mortality now—in a series five times as great—has dropped to 6 per cent. and with some surgeons even to the zero mark. Taking all classes of cases operated upon, at all stages of the disease, where fifteen years ago a mortality of 22 per cent. was registered, last year, in a series ten times greater in number, the mortality was reduced to 2.2 per cent., thus making the results just one hundred times better than a few years ago. Yet, there are still some surgeons who endeavour to differentiate between a catarrhal and a gangrenous appendicitis, forgetting for the time all the possible stages between the two; forgetting also that a benign case may pass rapidly into a grave condition before such procrastinating surgeon can make up his mind as to the path of safety.

Another advance during the past year has been the almost universal use of iodine in the preparation of the field of operation. This procedure has done much towards the greater success in the treatment, particularly of severe, lacerated wounds and of compound fractures. Formerly a surgeon was not content with the dirt worked into the wound at the time of the accident, but must needs scrub in more dirt from the surrounding skin. Surgeons, too, are appreciating more and more the danger of the exploring finger in such cases, and are beginning to learn the advantage to be gained from doing as little as possible. The additional use of anti-tetanic serum in all roadside fresh wounds is becoming more popular as a routine. Spinal anæsthesia and rectal anæsthesia show no sign of displacing ether by the "drop method." As the apparatus for the administration of gas and oxygen becomes less complex, it will have a decidedly advantageous place in the surgeon's armamentarium, while chloroform is being kept closely in the background. When the profession at large becomes alive to the fact that all acute joint conditions are surgical cases demanding surgical treatment, there will be fewer deformities and ankyloses.

Res Judicata

BRONCHIAL ASTHMA

ASTHMA is a symptom rather than a disease. Its general nature is well known, it being a paroxysmal form of dyspnoea characterized by difficulty in expiration; but when the essential nature of the condition is considered much difference of opinion is found to exist. The favourite theory is that the dyspnoea is due to a spasm of the smaller bronchial tubes. This spasm may spread to the diaphragm and other respiratory muscles, and will account for the rigidity of these muscles during a paroxysm.

Another belief is that the trouble is due to an angio-neurotic condition of the bronchial mucous membrane, leading to obstruction here, and analogous to certain skin states, such as nettle-rash. In hay fever there is certainly an engorgement of the nasal and conjunctival mucous membranes, and the idea is that in true asthma a somewhat

similar state occurs farther down. Meltzer has recently suggested that asthma is really a manifestation of anaphylaxis. It is known that animals such as guinea-pigs, if injected with an animal serum and again a few days later with another dose of the same material, will frequently die with symptoms resembling asthma, and one sees the condition occur on the skin and even the mucous membranes after antitoxin and other sera. Further, Gillette, in an investigation into the cause of sudden death after the use of antitoxin, found that, in most instances, there existed a history of asthma. Meltzer's theory of asthma may possibly explain those cases following errors in diet, and even those produced by the inhalation of certain substances, but cannot clear up the common ones connected with coarse abnormalities in the nasal passages nor those following chill to the surface of the body.

In a discussion upon asthma held at the Birmingham meeting of the British Medical Association this year, the general opinion was expressed by all the speakers that the condition was essentially a neurosis, apart altogether from the question whether it was directly manifested by bronchial spasm, vascular engorgement, or any other physical cause of obstruction or interference with respiration. The history of the cases and the idiosyncrasy noted towards various causes, all point in this direction.

Two factors are to be considered in every case of asthma; namely, the degree of hypersensitiveness of the bronchial neuromuscular apparatus and the amount of reflex irritation. In most individuals the neuro-muscular apparatus is so insensitive that no amount of reflex irritation will produce an attack of asthma. In others, this sensitiveness is so marked that the attacks may appear to occur even spontaneously. In some children nothing will produce a fit, while in others, and more sensitive ones, the least indiscretion in diet, or any other cause, will be sufficient to do so, and the same thing applies in the case of asthma.

It has been shown that the bronchial tubes dilate during every inspiration and contract during each expiration. If any irritant be inhaled, the contraction, along with the resulting violent expiration, becomes more marked, and is really a defensive mechanism to prevent the further inhalation of the irritant. Brodie and others have, further, shown that irritation of the upper air passages produces a contraction of the bronchi. Asthma might then, in the light of these facts, be considered as an exaggeration of the normal contraction of the bronchial tubes to an irritant, the irritant being either local or reflex from a distance.

The hypersensitiveness of the bronchial apparatus may be due to hereditary causes, fully forty per cent. of the cases showing this taint. Or it may be due to some toxin in the blood, such as occurs in gout or is introduced from without, as alcohol, caffeine, or nicotine. Again, this nervous instability may be temporary, and produced in a susceptible subject by over-work, worry, or other nerve-wearing factors.

The reflex causes are of the most diverse origin, the chief ones, perhaps, being bronchitis (producing bronchitic asthma), coarse abnormalities in the nasal passages, such as polypi, errors in diet, cold to the surface of the body or of the inhaled air. Idiosyncrasy is more marked in asthma than in any other disease. Each asthmatic has his own special *bête noire*, which to another equally bad case may be quite innocuous. Graves's two cases are often mentioned as examples of this; the famous physician happened in one day to see two cases of asthma, one of which dreaded his chimney smoking as it always meant an attack of his trouble to him, while the other encouraged him to smoke as he was never so free from asthma as when in an atmosphere so polluted.

In undertaking the treatment of a case of asthma it is, hence, most necessary that the practitioner should go thoroughly into the history of the case in the hope of unearthing some removable cause. The question of climate has often to be considered, and probably the general opinion now-a-days is that there is no special climate that will suit all cases. Each asthmatic is a law unto himself. If the case be one of bronchitic asthma, then the climate which is best suited for the relief of the existing bronchitis will be indicated; but otherwise no general rule can be laid down. A recent example illustrates this point. A mother and adult daughter, both suffering from asthma, spent much time and money in trying different health resorts, but it always happened that the climate which suited one did not suit the other, until at last they lived together in the centre of a great smoky town, where both had comparative ease. Cold baths and douches, regular exercise, and everything which tends to raise the general health are important. Electricity, in the form of the Faradic current, applied to the neck at the angles of the jaw, has been much advocated, and, apart from the direct effect upon the vagus nerves, in a condition which is so manifestly a neurosis, the psychic influence of such treatment must be marked. Some have gone so far as to say that asthma can be produced by psychic means and in the same way may be cured by such treatment, but it is hard to believe that the average case can be thus influenced to any marked extent.

In most cases of asthma some drug therapy will be required, and from the very fact of the great number of different medicinal remedies that have been advocated, one may conclude that none of them are constant in their effects. There is, however, a general consensus about at least three drugs, these being iodide of potassium, arsenic, and belladonna. The first no doubt aids in elimination, and also, in bronchitic cases, tends to make the bronchial secretion more fluid, and in this way relieves the bronchial irritation. The mode of action of arsenic is quite obscure and it is on purely empirical grounds that it holds its position, the first position, according to many. It would be easy to theorize as to the way in which belladonna acts. It has been shown by Dresser and others that the contraction of the bronchi produced by irritation of the upper air passages or direct stimulation of the vagi does not occur in an animal which has been brought under the influence of atropine. Again, atropine dries up the bronchial secretion, stimulates the respiratory centre, and raises the systemic blood pressure, so that in many ways it may have an influence upon the sensitive bronchial apparatus. Belladonna was strongly advocated by Trousseau, then fell into disuse, but again is frequently employed, usually as an addition to a mixture containing iodide of potash and arsenic. Bromides theoretically should lessen the reflex irritability and are of some use, but on the whole seem disappointing.

A paroxysm of asthma is self-limiting. The asphyxia that occurs causes the accumulation of CO_2 in the blood, and this is a powerful antispasmodic. Recently William Ewart suggested that we should anticipate this natural relief by the administration of CO_2 by inhalation. Many inhalations are employed for the relief of the paroxysms. Most of the proprietary ones contain nitrate of potash, powdered stramonium leaves, and some aromatic, such as aniseed. They are burned and the smoke is inhaled. Amyl nitrite is much employed. The chief objection to its free use is the headache that is apt to be set up, but this may be largely avoided if the patient inhale only through the mouth. Chloroform is valuable in the same way.

Cocaine, either as a spray or as a pigment painted on the nasal mucous membrane is often most comforting, but in a chronic disease like asthma the danger of the drug habit is too great to allow of the free use of it by the laity. It should be prescribed with great caution, if at all, and no druggist should be allowed to dispense the same prescription again without the order of the physician. Internally chloral hydrate is of value, but hypodermic medication is

specially indicated, as absorption from the alimentary tract is likely to be too slow in the emergency. Three drugs are chiefly used in this way,—morphia, atropine, and adrenalin. Morphia has been much used and is probably the favourite with most practitioners. Here again, however, it is necessary to bear in mind that we are dealing with a condition which is likely to be of long duration, and hence the danger of the habit being formed must always be kept in mind. The patient should certainly not be given a hypodermic syringe for self use.

Atropine given hypodermically no doubt is often of value. It has been lately advocated that the patient be given atropine daily for some weeks in gradually increasing doses, and some cases have been published by Febrey and others where it seemed to affect a cure.

Adrenalin has most recently come into use and medical literature is pregnant with records of cases where it has proved most effectual in stopping the spasms. When given hypodermically it has little effect upon the blood pressure, but tends to relieve the dyspnoea in some little-understood way. Abrams has demonstrated that the lung shows a reflex of contraction and another of dilatation, according as the chest is tapped lightly or heavily, and that this reflex cannot be obtained after adrenalin has been administered. This may bear upon the matter, but adrenalin seems to have a powerful action in cardiac dyspnoea where there is no question of bronchial spasm. Indeed, in 10 minim doses of the 1-1000 solution, it may be life-saving where a cardiac case is apparently *in articulo mortis* from dyspnoea. Several examples of this have recently come under the writer's notice, and it has been referred to by others.

Paroxysms of asthma are practically never fatal, but asthmatics are not "first class lives" from the insurance point of view. The recurring dyspnoea leads to emphysema and heart changes which in time tend to shorten life.

R. D. RUDOLF

Personal

DR. W. J. HUNTER EMORY, of Toronto, left on October 9th for California where he will reside in future. Before his departure he was entertained at a dinner, and presented with an illuminated address by the medical and surgical staff of Grace Hospital, of which Dr. Emory was one of the senior surgeons.

DR. OLLIVER BRUCE, of London, Eng., has been appointed resident physician of the Queen Alexandra Sanatorium, London, Ont.

DR. D. J. GIBB WISHART represented the University of Toronto at the third International Rhino-Laryngological Congress which met in Berlin, Germany, from August 30th to September 2nd. Nearly five hundred of the leading laryngologists of the world were in attendance.

News

At a meeting of the board of governors of McGill University held October 17th, the following appointments were made in the faculty of medicine: Dr. J. Alex. Hutchison, associate professor of surgery and clinical surgery, with a seat on the faculty; Dr. J. M. Elder's title changed from that of assistant professor of surgery and lecturer in clinical surgery to that of assistant professor of surgery and clinical surgery; Dr. D. D. MacTaggart appointed professor of medical jurisprudence; Dr. J. S. Dohan, appointed lecturer in crown and bridge work in the dental department; Dr. David Patrick, appointed lecturer in gynæcology; Dr. C. B. Keenan, appointed lecturer in clinical surgery; Dr. Philip Burnett, appointed lecturer in dermatology; Dr. J. L. Masch, appointed lecturer in pharmacy; Victor J. Harding, B.Sc., appointed lecturer in biological and physiological chemistry.

THE opening lecture of the medical faculty of McGill University for the session 1911-12, took place on October 2nd, and was given by the newly appointed professor of physiology, Dr. N. H. Alcock

of London. Dr. Alcock chose as his subject, the physiology of anæsthetics. The lecture was given in the new assembly hall of the west wing of the new medical buildings, which has just been completed.

The attendance in the faculty of medicine this year is about the average. In the first year there are 79; in the second, 58; in the third, 79; in the fourth, 60; and in the fifth year, 54; making a total of 330. In the dental department, there are in the first year, 11; second year, 6; third year, 4; fourth year, 4; making a total of 25 dental students. This, together with six graduates taking the diploma of public health course, makes a total for the session of 361.

Obituary

DR. D. N. MORRISON, of Sydney, C.B., died at the Halifax Infirmary, September 4th, 1911. Dr. Morrison was born at Loch Lomond, C.B., in 1857. He graduated in 1883 from the Halifax Medical College, and practised for a number of years at Freeport and Oxford, N.S., before locating at Sydney.

DR. ALEXANDER STEWART, of Palmerston, Ont., died in Toronto, September 8th, 1911. Dr. Stewart was a native of North Easthope, near Stratford, and after graduation settled in Palmerston where he practised continuously for forty years. A few months ago he was forced by ill health to give up active work. Dr. Stewart established and built up the Ontario Vaccine Farm.

DR. RICHARD STANBURY, of Bayfield, Ont., died September 7th, 1911. Dr. Stanbury was born in Devonshire, England, in 1834, but received his early education in Canada. He graduated in medicine from Victoria Medical College, in 1865, and after a course in Bellevue Hospital, New York, settled in Bayfield, where he spent a long life in practice. Dr. Stanbury took an active interest in local affairs, and for several years was reeve of his village.

DR. W. G. WALKER, of Stratford, Ont., died September 19th, 1911. Death was the result of carbolic acid, which was taken in mistake for a cough mixture. Dr. Walker was born at Stratford in 1869, and graduated in 1892 with first class honours from McGill.

After a post graduate course at Baltimore, he settled in Stratford, where he practised until the time of his death.

DR. FRANCIS WALTER HALL, of Victoria, died October 3rd, 1911. Dr. Hall was born at Richmond Hill, Ontario, in 1861, where he received his early education. His medical course was taken in the Detroit College of Medicine, from which he graduated with honours in 1883. After a short time spent in practice in Louisville, Kentucky, he went to Victoria, where he practised continuously for twenty-six years. Dr. Thomas Hall, of Westminster, and Dr. W. R. Hall, of Chatham, Ontario, are brothers of the late Dr. Hall.

DR. CHARLES TROW, of Toronto, died suddenly October 8th, 1911. Dr. Trow was born in 1856 at Stratford, Ont. He graduated in medicine from Toronto University in 1885; and for the next five years took a number of post-graduate courses at various universities in Europe. On returning to Toronto, he began practice as a specialist in diseases of the eye and ear. Dr. Trow was a member of the Ontario Medical Council and was associate professor of ophthalmology and otology in the faculty of medicine, University of Toronto.

DR. ARTHUR H. THOMPSON, of Lapeer, Michigan, died September 26th, 1911. Dr. Thompson was born in St. Thomas, Ontario, in 1838.

THE death is announced in Montreal on October 17th, of Dr. Sydney George Brown. Dr. Brown was a graduate of Bishop's College and was in the thirty-sixth year of his age. He graduated in 1903 and has always practised in Montreal.

Canadian Literature

ORIGINAL COMMUNICATIONS

The Canadian Practitioner and Review, October, 1911:

Serum Treatment of Pneumonia . . .	J. H. Duncan.
Equilibrium Tests . . .	J. P. Morton.
The Cure of Inguinal Hernia . . .	Robert Lucy.

Le Journal de Médecine et de Chirurgie, October, 1911:

Les services hospitaliers de l'Université
de Berne; La clinique du Prof. Kocher:
le traitement du goitre exophtalmique.

Eugène Saint-Jacques.

Le Cancer

Charles Saint-Pierre.

La lutte anti-tuberculeuse: l'Institut

Bruchési

Eugène Saint-Jacques.

Le Bulletin Médicale de Québec, September, 1911:

Ulcères de la cornée

Adolphe Drouin.

Traitement médical de l'appendicite;

observations cliniques

Edgar Couillard.

Medical Societies

VALLEY AND COLCHESTER-HANTS MEDICAL SOCIETIES

A JOINT meeting of these two societies was held at Hantsport on September 7th, when the following papers were read: "Massage and Passive Movements in the Treatment of Fractures," Dr. W. T. Mackinnon, Berwick; "Infantile Paralysis," Dr. J. W. Reid, Windsor; "Fever of Obscure Origin," Dr. A. Birt, Halifax; "Abdominal Surgery," Dr. S. A. Mixer, Boston. In addition, Dr. J. W. Dewis of Boston gave a talk on some of the diseases of the stomach, with a demonstration of the practical tests used in diagnosing various diseased conditions of this organ. A resolution was passed expressing appreciation of the work of the late Dr. L. H. Morse, vice-president of the Valley Medical Society.

THE MONTREAL MEDICO-CHIRURGICAL SOCIETY

THE second regular meeting for the session 1911-12 was held in the society's rooms on October 20th.

The following were recommended for temporary membership: resident staff, Hôtel Dieu; Montreal General Hospital; Royal Victoria Hospital; Montreal Maternity Hospital; Western Hospital;

Protestant Hospital for Insane; Alexandra Hospital; Children's Memorial Hospital.

PROGRAMME

Living Cases—1. Two cases of brain tumour successfully operated upon, D. A. Shirres. 2. Regeneration of bone, Kenneth Cameron. Pathological Specimens—Series by O. C. Gruner. Exhibits—1. A portable *x*-ray, high-frequency, D'Arsonval and diathermy apparatus. 2. A modification of the Pirie stereoglass, for *x*-ray stereoscopic pictures, R. Wilson. Paper—A clinical record of an expedition to the Gambia, S. B. Wolbach, J. L. Todd.

The paper consisted of a cursory account of an expedition to the Gambia in the spring of 1911 by Drs. Wolbach and Todd, to investigate tropical diseases, especially sleeping sickness. The paper was illustrated by lantern slides.

LUNENBURG—QUEEN'S MEDICAL SOCIETY

THE annual meeting of this society was held at Bridgewater, on Tuesday, June 27th. On account of the nearness of the meeting of the Maritime Medical Association, there were no papers read. The officers elected for the ensuing year were: president, Dr. J. W. Smith, Liverpool; vice-president, Dr. C. A. Hamilton, Mahone Bay; sec.-treasurer, Dr. L. T. W. Penney; executive, the above officers, with Drs. Dugald Stewart and W. H. MacDonald.

BRITISH COLUMBIA MEDICAL ASSOCIATION

THE twelfth annual meeting of the British Columbia Medical Association was held in Vancouver on Thursday and Friday, August 31st and September 1st. Dr. Octavius Weld, the president, was in the chair and extended a welcome to the members and visitors. Over seventy members registered at the morning session, and among the visitors were: Dr. W. W. Chipman, of Montreal, Dr. H. A. McCallum, of London, Ont., Dr. G. S. Peterkin, Dr. A. E. Burns, and Dr. P. W. Willis, of Seattle. The reports of the various

committees were very satisfactory. The audit committee reported the finances of the Association to be in good condition.

The following is the programme of papers read and discussed:

Thursday—"Rheumatism in Children," by Dr. H. Dyer, North Vancouver. Discussion opened by Dr. J. M. Pearson, Vancouver.

"The Selection of Cases for Sanatorium Treatment and the Results to be Expected," by Dr. C. H. Vrooman, Medical Superintendent, Tranquill Sanatorium. Discussion opened by Dr. J. J. Thomson, North Vancouver.

"Some Notes on Radium Treatment," by Dr. F. L. de Verteuil, Vancouver. Discussion opened by Dr. G. V. Lockett, Vancouver, B.C.

An address on "The Mental Factor in Diseases and Treatment," by Dr. H. A. McCallum, Professor of Medicine, Western University, London, Ont. Discussion opened by Dr. C. E. Doherty, New Westminster.

"The Intraperitoneal Route in Operations on the Ureter," by Dr. Robert E. McKechnie, Vancouver. Discussion opened by Dr. R. C. Boyle, Vancouver.

"Alcohol: Its Relation to Insanity," by Dr. McKay, Assistant Superintendent, Hospital for the Insane, New Westminster. Discussion opened by Dr. A. P. Procter, Vancouver.

"Conservation of the Ovary," by Dr. W. W. Chipman, Gynaecologist, Royal Victoria Hospital, Montreal. Discussion opened by Dr. O. M. Jones, Victoria. "Moulds in the Alimentary Canal," by Dr. T. P. Hall, Vancouver. Discussion opened by Dr. A. L. Johnson, Vancouver. "Suction Apparatus for Treating Empyema" shown by Dr. K. A. Panton, Vancouver.

Friday—"Ulcerative Condition of the Colon," by Dr. R. V. Dolbey, Vancouver. Discussion opened by Dr. H. E. Ridewood, Vancouver. "The Colon Bacillus: The Role it Plays in Urinary Diseases," by Dr. G. S. Peterkin, Seattle, Wash. Discussion opened by Dr. C. S. McKee, Vancouver. "Paraffin Injections," by Dr. Arthur E. Burns, Seattle, Wash. Discussion opened by Dr. Colin Graham, Vancouver. "Hypopyon and Sæmisch Ulcers of the Cornea," by Dr. A. Channing Pearce, Penticton, B.C. Discussion opened by Dr. R. B. Boucher, Vancouver. "Some new Urological Instruments of Dr. G. S. Gordon, Vancouver," shown by Dr. J. Campbell. "Salvarsan or 606," by Dr. J. Campbell, Vancouver. Discussion opened by Dr. G. S. Peterkin, Seattle. "Symptoms and Treatment of Stricture and Stenosis of the Ureter: A Series of Cases," by Dr. O. M. Jones, Victoria. Discussion opened by

Dr. R. E. McKechnie, Vancouver. "Tubercular Meningitis: Relapses and Cures," by Dr. B. D. Gillies, Vancouver. Discussion opened by Dr. R. Eden Walker, New Westminster. "Melæna," by Dr. C. F. Covernton, Vancouver. Discussion opened by Dr. J. W. McIntosh, Vancouver.

The retiring president, Dr. Octavius Weld, in his presidential address, referred to the affiliation effected between the British Columbia Medical Association and the Canadian Medical Association, and urged upon the members present the need of connecting themselves with the latter organization. The CANADIAN MEDICAL ASSOCIATION JOURNAL was also by resolution selected as the official Journal of the Association.

The officers elected for the coming year are as follows: president, Dr. J. D. Helmcken, Victoria; vice-president, Dr. E. C. Hart, Victoria; treasurer, Dr. C. E. Doherty, New Westminster; secretary, Dr. A. S. Monro, Vancouver; executive committee, Dr. O. M. Jones, Victoria, Dr. W. D. Keith, Vancouver, Dr. H. J. Wasson, Victoria. Place of meeting: Victoria. Time to be decided by the executive.

THE OTTAWA MEDICO-CHIRURGICAL SOCIETY

THE first meeting of the Ottawa Medico-Chirurgical Society for the session 1911-12 was held October 6th. The programme consisted of an address by the president, Dr. C. H. Brown, and accounts of summer experiences in England and Germany, by Drs. Argue, Gibson, and Mohr.

The following are the officers for the year: honorary president, Sir James Grant; president, Dr. C. H. Brown; 1st vice-president, Dr. J. D. Courtenay; 2nd vice-president, Dr. J. R. O'Brien; secretary, Dr. F. W. C. Mohr; treasurer, Dr. A. S. McElroy; librarian, Dr. Charles Preston; curator, Dr. W. S. Lyman; council, Dr. Cousens, Dr. Small, Dr. Gibson, Dr. Argue, Dr. J. G. Smith.

Medical Societies

- CANADIAN MEDICAL ASSOCIATION** :—President—H. Goodsir Mackid, Calgary. Secretary—Dr. Edward Archibald, 160 Metcalfe Street, Montreal.
- ACADEMY OF MEDICINE, TORONTO** :—President—Dr. A. A. MacDonald. Secretary—Dr. J. G. Fitzgerald.
- ASSOCIATION OF MEDICAL OFFICERS OF THE MILITIA** :—President—Major E. A. LeBel, A.M.C. Secretary—Captain T. H. Leggatt, Ottawa.
- BRITISH COLUMBIA MEDICAL ASSOCIATION** :—President—Dr. R. W. IRVING, Kamloops. Secretary—Dr. A. S. Monro, Vancouver.
- BRITISH MEDICAL ASSOCIATION, HALIFAX AND NOVA SCOTIA BRANCH** —President—Dr. Arthur Birt. Secretary—Dr. K. A. Mackenzie.
- CANADIAN ASSOCIATION FOR THE PREVENTION OF TUBERCULOSIS** :—President—Dr. J. G. Adami, Montreal. Secretary—Dr. George D. Porter, Ottawa.
- CANADIAN HOSPITAL ASSOCIATION** :—President—Miss C. F. Green, Belleville. Secretary—Dr. J. N. E. Brown, Toronto.
- CANADIAN PUBLIC HEALTH ASSOCIATION** :—President—Dr. T. A. Starkey—General Secretary Major Lorne Drum.
- COLCHESTER-HANTS MEDICAL SOCIETY** :—President—Dr. J. N. Reid, Windsor. Secretary—Dr. H. V. Kent, Truro.
- KINGSTON MEDICAL AND SURGICAL SOCIETY** :—President—Dr. R. W. Garrett. Secretary—Dr. W. T. Connell.
- LONDON MEDICAL ASSOCIATION** :—President—Dr. D. H. Arnott. Secretary—Dr. Edward Spence.
- LUNENBURG-QUEEN'S MEDICAL SOCIETY** :—President—Dr. W. N. Cochran, Mahone. Secretary—Dr. L. T. N. Penney, Lunenburg.
- MANITOBA MEDICAL ASSOCIATION** :—President—Dr. F. S. Keele, Portage la Prairie. Secretary—Dr. Jasper Halpenny, Winnipeg.
- MONTREAL MEDICO-CHIRURGICAL SOCIETY** :—President—Dr. C. F. Martin. Secretary—Dr. Hanford McKee.
- NOVA SCOTIA MEDICAL SOCIETY** :—President—Dr. James Ross. Secretary—Dr. J. R. Corston.
- OTTAWA MEDICO-CHIRURGICAL SOCIETY** :—President—Dr. C. H. Brown. Secretary—Dr. F. W. C. Mohr.
- OTTAWA MEDICAL SOCIETY** :—President—Dr. F. McKelvey Bell. Secretary—Dr. Omar Wilson.
- PETERBORO MEDICAL SOCIETY** :—President—Dr. G. Stewart Cameron. Secretary—Dr. E. A. Hammond.
- PICTOU COUNTY MEDICAL ASSOCIATION** :—President—Dr. C. J. Miller, New Glasgow. Secretary—Dr. John Bell, New Glasgow.
- ST. JOHN MEDICAL SOCIETY** :—President—Dr. T. D. Walker. Secretary—Dr. William Warwick.
- ST. THOMAS AND ELGIN COUNTY MEDICAL SOCIETY** :—President—Dr. S. N. Dorland. Secretary—Dr. Leith.
- SOCIÉTÉ MÉDICALE DE MONTREAL** :—President—Dr. E. P. Benoit. Secretary—Dr. Ludovic Verner.
- THE VALLEY MEDICAL SOCIETY** :—President—Dr. I. A. Sponagle, Middleton. Secretary—Dr. V. F. Connors, Hantsport.
- THE NEW BRUNSWICK MEDICAL SOCIETY** :—President—Dr. A. F. Emory. Vice-President—J. S. Bentley. Annual Meeting, St. John, July 18th and 19th, 1911.
- THUNDER BAY MEDICAL ASSOCIATION** :—President—Dr. A. J. G. Macdougall. Secretary—Dr. C. C. McCullough.
- WEST ELGIN MEDICAL ASSOCIATION** :—President—Dr. Patterson, Rodney. Vice-President—Dr. Crane, Wallacetown. Secretary-Treasurer—Dr. Smith, Fingal.
- WINNIPEG CLINICAL SOCIETY** :—President—Dr. J. G. Munroe. Secretary—Dr. O. C. Dorman.
- WINNIPEG MEDICO-CHIRURGICAL SOCIETY** :—President—Dr. Prowse. Secretary—Dr. John Gunn.